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THE

EDINBURGH
MEDICAL AND SURGICAL
JOURNAL:

EXHIBITING

A CONCISE VIEW

OF THE

LATEST AND MOST IMPORTANT DISCOVERIES

IN

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Page 257, *l.* 25, *for* partly *read* purely.
261, 8, *for* less inequalities *read* lesser inequalities.
261, 12, *for* interrupted *read* uninterrupted.
261, 24, *for* we have inquired *read* we have not inquired.
263, 5, *for* which they undergo *read* which they must undergo.
263, 32, *for* this *read* their.
264, 9, *for* which *read* while.
267, 29, *for* characters *read* character.
276, 14, *for* opposition *read* apposition.
277, 36, *for* if we venture *read* if we may venture.
282, 38, *for* tout *read* sont.
309, 27, *for* surface from *read* surface of.
312, 13, *insert* a period after liniments, and begin the word valerian, line 14, with a capital V.
312, 14, *for* hemlock and musk. Hydrocyanic acid was *read* hemlock, musk, and hydrocyanic acid were.

NOTICES TO CORRESPONDENTS.

Communications have been received from Dr **Hannay**, Dr **Bushnan**, W. H. **Wishart**, Esq. and **Alpha**.

The following works have been received:

Pétition addressée à la Chambre des Députés. Par N. Chervin, Membre titulaire de l'Academie de Medecine, suivie des pièces à l'appui, et du Rapport fait à la chambre par M. De Montepin. Paris, Mars 1833.

Letters on the Cholera Asphyxia, as it has appeared in the city of New York: addressed to John C. Warden, M.D. of Boston, and originally published in that city, together with other letters not before published. By Martin Paine, M.D. New York, 1832.

Observations on some of the most important points connected with the consideration and treatment of Cholera Asphyxia. By James Hutchison, A.M. Calcutta, 1832.

Report on the Present State of Vaccine Inoculation in Bengal, submitted to the Medical Board at Fort William, and published in the fifth volume of the Transactions of the Medical and Physical Society. By William Cameron, Presidency Surgeon, with an Appendix. Calcutta, 1832.

The Principles and Practice of Obstetric Medicine, in a series of Systematic Dissertations on Midwifery, and on the Diseases of Women and Children; illustrated by numerous plates. By David D. Davis, M.D., M.R.S.L. London, 1833. Parts 17, 19, and 20.

Observations on the Testicles. By James Russell, F.R.C.S. Edinburgh, 1833.

An Inquiry into the Causes of Respiration, of the Motion of the Blood, Animal Heat, Absorption, and Muscular Motion; with Practical Inferences. By James Carson, M.D. Liverpool. Second Edition. London, 1833.

A Manual of Pharmacy. By William Thomas Brande, F.R.S. &c. Third Edition, Corrected and Enlarged. London, 1833.

Clinical Illustrations of the most Important Diseases of Bengal; with the result of an Inquiry into their Pathology and Treatment. By William Twining, Member of the Royal College of Surgeons, &c. &c. Calcutta, 1832. 8vo. Pp. 705.

Etudes Anatomiques, Physiologiques et Pathologiques de l'œuf dans l'espece humaine et dans quelques unes des principales familles des Animaux Vertébrés; pour servir de materiaux à l'histoire générale de l'embryon et du fœtus, ainsi qu' à celle des monstruosités ou deviations organiques. Par G. Breschet, avec six planches. Paris, 1832.

Nouveau Système de Chimie Organique, fondé sur des Méthodes Nouvelles d'Observation. Par F. V. Raspail. Accompagné de douze Planches gravées, dont six coloriées. A Paris, 1833.

The Black Death in the Fourteenth Century, from the German of J. F. C. Hecker, M.D. Translated by B. G. Babington, M.D. London, 1833.

The Analysis of Inorganic Bodies, by J. J. Berzelius. Translated from the French edition by G. O. Rees. London, 1833.

History of the Cholera at Montreal, Vol. VIII. No. 4, 5. Wednesday, March 13, 1833.

Succinct Practical Observations on the Effects of Blood-letting, containing an Investigation of the Practice of General and Local abstraction of Blood; also, how far Leeches may be efficacious, independently of the evacuation they produce; to which are added, Observations of Visceral

Inflammation after Parturition. By Edward Geoghegan, M. R. C. S. I. London, 1833.

Observations on the Illusions of the Insane, and on the Medico-Legal Question of their Confinement. Translated from the French of M. Esquirol, by William Liddell, Member R. C. S. London, 1833.

The Dissector. By R. Dewey Forster, Surgeon. Part I. 8 plates, folio. London, 1833.

The Demonstrator, being an Explanation of the Dissection of the Human Body. By R. Dewey Forster, Surgeon. In 16 Parts, Part I. pp. 50. London, 1833.

Catalogue of the Anatomical Museum of the University of Pennsylvania, &c. By W. E. Horner, Professor of Anatomy. 2d Edition. Philadelphia, 1832. 8vo. pp. 51.

Illustrations of the Mechanism of Parturition. By Charles Emilius Ross, A. M. M. B. Member of R. C. S. E., &c. Dublin, 1833. 4to. Six Plates.

The Glasgow Medical Journal, conducted by William Weir, M. D. and James Adair Lawrie, M. D. Nos. I. and II. January and April 1833.

The Dublin Journal of Medical and Chemical Science; exhibiting a Comprehensive View of the latest discoveries in Medicine, Surgery, Chemistry, and the Collateral Sciences. No. VIII. Dublin, May 1833.

The Transactions of the Provincial Medical and Surgical Association. Volume I. London, 1833.

The American Journal of the Medical Sciences, No. XXII. February 1833. No. XXIII. May 1833.

The Maryland Medical Recorder, devoted to Medical Science in General. Conducted by Horatio G. Jameson, M. D. Professor of Surgery in Washington Medical College, Baltimore.

London Medical Gazette, for the Session 1832-33, from No. 25, March 23, to No. 36, June 8, 1833.

The London Medical and Surgical Journal, from No. 59, Vol. III. March 16, to No. 72, Vol. III. June 15.

EXPLANATION OF THE ENGRAVING.

Fig. 1. The first figure of the plate represents the *ganglion oticum sive Arnoldi* of the right side in the human subject, described in the paper of Mr Tylee. The trunk of the *trigeminus* is raised and thrown back, in order to display its internal surface. See p. 21.

The other figures illustrate the description of the membrane of the *pigmentum nigrum*, by Mr Jones, p. 77.

Fig. 2. Diagram of a fragment of the membrane of the pigment at its full developement, and containing the full quantity of the particles of colouring matter.

Fig. 3. The hexagonal plates magnified about 200 diameters.

Fig. 4. Diagram of a fragment of that part of the membrane of the pigment of the horse's, &c. eye, which lies over the tapetum, and which contains little or no colouring matter. The hexagonal plates have a tendency to become circular, and are separated from each other by wide intervals.

Fig. 5. Diagram of a fragment of the membrane of the pigment of the eye of the Albino rabbit. The plates are at their minimum of developement.

All Communications to be addressed to Adam Black, Esq. *Bookseller, North Bridge, Post paid.*

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Sketches from the Case-Book, to illustrate the influence of the mind on the body, with the treatment of some of the more important Brain and Nervous disturbances which arise from this influence. By R. Fletcher, Esq. Surgeon to the Gloucester General Hospital, and Consulting Surgeon to the Lunatic Asylum, near Gloucester. London, 1833. 8vo. Pp. 391.

Outlines of Human Physiology. By Herbert Mayo, F. R. S., F. G. S., Professor of Anatomy in King's College, London. Third Edition. 8vo. Pp. 478.

An Essay on Inflammation; being an Inquiry into the Causes, Phenomena, Treatment, and Terminations of this Condition, with a view to the elucidation of the Proximate Cause. By Phillip Lovell Phillips, M.D. Oxon. London, 1833. 8vo. Pp. 153.

A Treatise on those disorders of the Brain and Nervous System, which are usually considered and called Mental. By David Ewins, M. D. London, 1833. 8vo. Pp. 236.

A Manual of Experiments illustrative of Chemical Science, systematically arranged. By John Murray, F. S. A., F. L. S., F. H. S., F. G. S. Third Edition. London, 1833. 12mo. Pp. 149.

An Inquiry into the Causes of Respiration, of the Motion of the Blood, Animal Heat, Absorption, and Muscular Motion; with Practical Inferences. By James Carson, M. D. Liverpool. Second Edition. London, 1833. 8vo. Pp. 447.

Essays.—1. On the Anatomy, Physiology, and Pathology, of the Great Sympathetic Nerve. By Mr James Wilkes.—2. On the Anatomy of Inguinal Hernia. By Mr William Hammond. Birmingham, 1833. 8vo. Pp. 43 and 22.

Embryologie, ou Ovologie Humain, contenant l'histoire descriptive de l'œuf humain. Par Alf. A. L. M. Velpeau. A Paris. Folio. Pp. 104. 1833.

The Origin and Progress of the Malignant Cholera in Manchester. By Henry Gaulter, M. D. London, 1833. 8vo. Pp. 206.

A New Exposition of the Functions of the Nerves. By James William Earle. Part I. London, 1833. 8vo. Pp. 195.

A Report of the Method, and Results of the Treatment, for the Malignant Cholera. By Joseph Ayre, M. D. London, 1833. 8vo. Pp. 167.

Observations on Injuries and Diseases of the Rectum. By Herbert Mayo, F. R. S. Surgeon to the Middlesex Hospital. London, 1833. 8vo. Pp. 220.

The Principles and Practice of Obstetric Medicine, &c. &c. By David D. Davis, M. D. &c. &c. London, 1833. Nos. 21, 22, 23.

The Dublin Journal of Medical and Chemical Science, exhibiting a comprehensive view of the Latest Discoveries in Medecine, Surgery, Chemistry, and the Collateral Sciences. No. IX. July, and X. September. Dublin, 1833.

Traité Pratique des Maladies de *l'Uterus* et de ses Annexes. Tome II. 8vo. Par Mad. Boivin.

Atlas 5ieme, sixieme, septieme et huitieme livraisons. Fol. Paris, 1833.

London Medical Journal, from No. 73, June 22, to No. 84, September 7th, Vol. IV. August 24, 1833.

Liverpool Medical Gazette, No. 8, Vol. I. August 1833. We beg to inform the Editors of this Periodical, that we have received only the 1st, 2d, and 8th Nos.

The Maryland Medical Recorder, devoted to Medical Science in General. Conducted by Horatio G. Jameson, M. D. Vol. III. No. 2, November 1832. Baltimore. 8vo. Pp. 468.

London Medical Gazette, for the Session 1832-33, from No. 37, June 15, to No. 50, September 14, 1833. Pp. 301.

ERRATA in Mr GASKELL'S paper.

Page 56, line 16, *for* in that of the spinal marrow *read* within the sheath of the spinal marrow.
56, — 26, *for* is presented *read* was presented.
58, last line, *for* conjuuctiva *read* conjunctivæ.
63, line 11, *for* somewhat approaching *read* approaching.
63, — 41, *for* from the serum *read* from the serous.

THE

EDINBURGH

MEDICAL AND SURGICAL JOURNAL.

1. JULY 1833.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Supplement to the Essay on the Classification of Cutaneous Diseases, presenting a view of that of M. Alibert.* By JOHN PAGET, M. D. formerly President of the Royal Medical Society.

IN this supplement it is my intention to present the English reader with an outline of the natural method of arrangement to which M. Alibert has reduced the diseases of the skin. I am induced to adopt this course, as well in justice to myself and the author to whose tenets I have so freely expressed my adherence, as in the hopes of furnishing the reader with information which cannot as yet be obtained from any other source.

It is well known that some years ago (1806) M. Alibert commenced the publication of a work on cutaneous diseases, containing a series of the most splendid engravings, but deficient in arrangement and classical nomenclature. At this period the knowledge of diseases of the skin was at the lowest possible ebb in France. The Hospital of St. Louis was a kind of lazaretto to which skin affections were sent, with other chronic diseases which were supposed to be of little interest, and almost beyond hope of cure. M. Alibert's first endeavour, on applying to the study of these diseases, was the determination of species, and, as far as possible, the formation of genera, leaving the classification and nomenclature to a later period, when these first points should have been fully settled. This was all that was attempted in M. Alibert's first work.

About the same time, or somewhat previously, Dr Willan began the publication of his well known work on the very opposite principles; he adopted and modified a system, and applied the diseases to it. It should have been observed that the labours of each were unknown to the other, for war had completely cut off the communication between France and the rest of Europe, especially England. The system of Willan, from its apparent simplicity and certainty, was generally adopted throughout England, and extensively on the Continent; while the work of M. Alibert, from the circumstances already mentioned, and from its costly form, was confined to comparatively few, some of whom, we may remark, have not failed to appropriate many of the admirable descriptions with which it teems, though they have forgotten to acknowledge whence they have derived them.

After having completed the establishment of the species, and their union in genera, M. Alibert commenced a reform in the nomenclature, and a general methodical arrangement. He first promulgated his method about four years since, in his clinical lectures, but it was only last summer that he commenced its publication.* Of this work as yet only four numbers have appeared; and as it is to be on the same splendid scale as the former one, containing at least one folio engraving of every genus, some time must elapse before it can be completed, and still more before it can be generally known in England. To supply in some degree this deficiency, and to prevent the supposition that it is of M. Alibert's original classification and nomenclature of which we speak, this supplement has been drawn up.

In laying down the characters of the groups, we have endeavoured to follow, as far as possible, the author himself. But this has been no easy task; for the descriptions are often spread through ten or twelve quarto pages, and mixed with the history, origin, &c. of several of the genera they include. Should this part be considered faulty, therefore, I beg that it may be attributed to my imperfect comprehension of the author's intentions, or erroneous representation of his opinions. For the generic characters I am not answerable, as they are strict translations, except in some instances where some important circumstance seemed to have been omitted, and which I have ventured to add, always, however, in italics. In the first genus we have given each species with its definition, as a specimen of the manner in which the species are formed.

In the original the title of each group is either French, or reduced to the form of a French adjective. These we have altered to a form more analogous to our medical nomenclature, and, where necessary, have formed terms either from the Latin or Greek. This has been done under the inspection, and with the entire approbation, of the author himself. For convenience in reference, we add the list of names in both forms.

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* About the same time M. Daynac edited an edition in 4to and 8vo of the lectures of M. Alibert; but as they were supposed to interfere with the great work, their publication has been stopped, and a few presentation copies only are now in circulation. It is from the 4to edition of this work that we always quote.

Eczémateuses,	Eczemata.
Exanthémateuses	Exanthemata.
Teigneuses,	Tineæ.
Dartreuses,	Serpigines.[*]
Cancéreuses,	Cancrodes.
Lépreuses,	Leprodes.
Veroleuses,	Aischrodes.[†]
Strumeuses,	Strumæ.
Scabieuses,	Psorodes.[‡]
Hémateuses,	Hæmatodes.
Dyschromatéuses.	Dyschromata.
Hétéromorphes,	Heteromorphea.

GROUP I.—ECZEMATA.

The diseases included under the first group are characterized by acute inflammation of the skin, always accompanied by more or less pain, and generally by redness and swelling. These affections are mostly local in their origin, but the constitutional irritation produced by the eruption is often sufficient to induce secondary fever; they sometimes depend on constitutional disturbance; gastro-intestinal irritation is the most common cause. They occupy every part of the dermatic tissue, from the epidermis to the subjacent cellular membrane. The pain, the peculiar characteristic of the eczemata, may be burning, itching, tensive, pungent, gnawing, throbbing,—indeed words fail to express its innumerable shades and modifications.

GENUS. I. ERYTHEMA. A disease which shows itself on one or more parts of the integument, by red, inflamed, circumscribed elevations; varying in extent, more or less superficial, and generally terminating in desquamation or slight furfuration (bran-like exfoliation) of the epidermis. Excoriations and even ulcerations of the skin sometimes occur.

SPECIES I. *E. spontaneum.* This species is easily distinguished by the red colour of the skin, disappearing momentarily on pressure, and by the heat and smarting by which it is accompanied. It ends in resolution, with exfoliation of the epidermis. It is frequently attended by slight constitutional disturbance. Under this species, are included as varieties, the *Erythema papulatum, tuberculatum, nodosum,* &c. of Willan.

2. *E. epidemicum.* This erythema is principally marked by burning itching, and a very troublesome sensation of pricking in the hands and feet. In some cases the skin is red, as if it had been exposed to the heat of a fire; in others it is black, as if covered with a layer of soot. The epidermis exfoliates or forms vesications. The constitutional symptoms are unusually severe. This disease reigned epidemically in Paris in 1828.

3. *E. endemicum,* is a chronic affection of the skin, which espe-

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[*] "Serpit per totum corpus."

[†] Aischrodes from αισχρος, à αισχος turpitudo, fœditas, obscenitas.

[‡] Psorodes, from ψωρωδης, à ψωρα, à ψαιρω, quia fricari solet.

cially attacks the peasants of the north of Italy, where it is commonly known under the name of *pellagra*. It generally commences about spring, after continued exposure to the heat of the sun, and terminates about the end of autumn. It begins with smarting or itching of the parts most exposed to the sun's rays, as the hands, feet and face; the skin becomes red, and desquamates about the 9th or 10th day. Small *bullæ* frequently form, which break and become dark scabs. It is very liable to return, and is sometimes attended with severe nervous and cerebral symptoms. There is a variety which is less dependent on the season, called *salsadine*, from the salt taste in the mouth, which the patient experiences in the morning on first awaking. Most of the sensations seem more or less vitiated in this form of the disease.

4. *E. intertrigo*, is that slight inflammation, sometimes with excoriation, which occurs especially between the thighs and about the external organs of generation. It generally arises, either from the chafing of the thighs in stout persons when walking, or from the contact of urine or *fæces* in children, or paralytic patients who are badly nursed.

5. *E. paratrimma*. This is a diffuse inflammation, arising from long continued pressure. Two varieties have been formed from the two situations it most commonly occupies. 1*st*, The *Paratrimma palmaria*, which affects the hands of certain classes of workmen, and, 2*d*, the *Paratrimma coccygia*, which is so often seen on the back, loins, &c. of bed-ridden invalids, and which so frequently terminates life by gangrene.

6. *E. pernio*. (*Chilblains*.) This disease affects chiefly the extremities, and is characterized by excessive itching and tingling pains, attended with redness, swelling, and sometimes ending in ulceration or even gangrene.

7. *E. per adustionem*, is that redness which follows immediately on the application of fire to a living body, and which tends to terminate in vesication and separation of the cuticle. The phenomena will, of course, vary in intensity, according to the nature of the substance from which the heat is derived, and the extent to which it is applied.

GENUS II. ERYSIPELAS. This is an inflammation of the integument, occurring on all parts of the body, but especially on the face, arms, and thighs, with an eruption of a yellowish red colour, rarely of a deep red; this redness disappears momentarily on pressure. There is heat, with an itching, burning or throbbing pain, *often attended with large irregular vesications; tumefaction of the skin, generally extending to the subjacent cellular tissue;* and fever primary or secondary. The disease may terminate in *resolution*, desquamation, *suppuration, or gangrene*.

SPECIES 1. *E. exquisitum*; 2. *E. phlegmonodes*; 3. *E. œdematodes*.

GENUS III. PEMPHIX.—An inflammation manifesting itself on one or more parts of the integument, by bullæ or vesicles, irregular in size and form, sometimes bounded by a slightly inflamed margin. These bullæ or vesicles, which result from the rising of the epidermis, are filled with a transparent viscous serosity. In a few days they become flaccid and subside; in some cases they burst, and leave the papillary membrane exposed; fragments of the cuticle form on the surface a kind of eschar of a violet red, or black colour. Redness, vesication, and burning pain, are the elementary phenomena of this painful disease.

Species 1. *P. acutus;* 2. *P. diutinus* (*Pompholix diutinus*, Willan.) The first species, the *Pemphix acutus*, a febrile disease attended with an eruption of bullæ, and sometimes fatal in a very short time, appears to be the *Pemphigus* of Willan. Bateman, who had never seen this disease, questions the reality of its existence, but M. Alibert and others, have seen cases which place the matter beyond a doubt. Bateman, however, was right in saying, that there was no such disease as the *Pemphigus* of Cullen, *Typhus contagiosa, &c.* See Alibert, Gilibert, Rayer, and Cazenave and Schedel.

Genus IV. Zoster. (*Herpes zoster*, Willan.) An inflammation with eruption of agglomerate vesicles surrounded by a red, inflamed areola. The vesicles generally arrange themselves in the form of a girdle round one half of the body, from the spine to the *linea alba.* They sometimes assume other situations, as the side of the neck, in the form of a cravat, or on the knee like a garter, on the posterior part of the trunk, or about the shoulders. The pain is burning and tingling; *sometimes shooting, apparently deep-seated, and so severe as to prevent all rest.* After some days, *generally about twelve,* the vesicles dry, and leave red spots on the skin, which eventually disappear.

Species 1. *Z. acutus;* 2. *Z. chronicus.*

Genus V. Phlyzacion (*Ecthyma*, Willan.) A vesiculo-pustular inflammation, commonly appearing on the thighs, arms, fore-arms, and often even in the interstices of the fingers, or on the backs of the hands. At first the skin inflames, reddens, and rises in a point; a large pustule soon forms, and fills with a sero-purulent fluid. When the pustule has gone through its several periods, it drys, and forms a brown scab, *sometimes of considerable size.*

Species 1. *P. acutum;* 2. *P. chronicum.* Under the second species, M. Alibert includes the *Phlyzacion scorbuticum* of some authors, the *Ecthyma cachecticum*, and the whole genus *Rupia* of Willan. The latter genus is variously classed by the followers of the artificial system. Bateman places it among the vesicles, and observes, that, but for a difference in the primitive form of the eruption, it might be included among the *Ecthymata;* while Rayer has classed it with the *Bullæ.*

Genus VI. Cnidosis. (*Urticaria*, Willan.) An inflammation which extends to one or more parts of the surface, and is marked by an eruption of patches, spots, blebs, or wheals, *more or less prominent, pale in the centre, surrounded by a slight blush of redness,* coming on spontaneously, *disappearing almost instantly, or remaining for an indefinite period,* and accompanied by severe itching, or *tingling like that produced by the sting of nettles.* It terminates by resolution, or passes off with slight desquamation.

Species 1. *C. acuta (febrilis)*; 2. *C. chronica.* M. Alibert in his definition of the genus, speaks of the eruption as prominent, or not prominent at the surface; but further on observes, "Le Cnidosis, soit aigu, soit chronique, donne toujours lieu à une éruption sensiblement et visiblement saillante au-dessus de la peau." I have followed the latter description. There are several varieties enumerated of the first species, as the *maculosa, tuberosa,* (red swellings, painful to the touch,) &c. &c.

Genus VII. Epinyctis. An inflammation of one or more parts of the integument, with eruption of a papular or pustular form, the accompanying symptoms of which, *(excessive smarting or itching)* commence or increase in the course of the night, and recede during the day. The parts usually covered suffer most severely, while in *Cnidosis* the very opposite selection is observed.

Species 1. *E. acuta*; 2. *E. chronica.* The existence of this disease has been called in question by several modern authors. M. Alibert, however, cites two cases from his own observation, which, though differing considerably from the disease, to which some of the Roman medical writers have applied the name, possess characters which justly entitle them to this appellation.

Genus VIII. Olophlyctis. (*Herpes phlyctænodes, &c.* Willan.) An inflammation manifested by vesicles, collected into circumscribed patches, appearing on one or more parts of the integument. These vesicles, the bases of which are highly inflamed, fade quickly, and dry about the seventh day. They are followed by scabs or grey scales, which fall off and leave for some time a red skin beneath.

Species 1. *O. miliaris,* (*Herpes phlyctenodes,* Willan); 2. *O. volatica* (*Feu de dents ou feu volage des enfans*;) 3. *O. prolabialis,* (*Herpes labialis,* Willan;) 4. *O. progenialis,* (*Herpes præputialis,* Willan;) 5. *O. hydroica* (*Sudamina.*)

Genus IX. Ophlyctis, (*Aphthæ,* Willan.) A superficial inflammation of the mucous membrane, with the formation of vesicles of a white or ash-grey colour, generally occupying the lips, the interior of the mouth, the gums, the tongue, the roof of the palate, the tonsils, or the pharynx. These vesicles sometimes extend as far as the stomach, or even through the whole alimentary canal; they may spread also to the larynx, and down the bronchial tubes. This disease attacks children and adults; it occurs also in the old and debilitated; it is common among certain of our domestic animals. *Ophlyctides* may exist with or without fever; they may terminate by desquamation or by ulceration.

Species 1. *O. acuta*; 2. *O. chronica.*

Genus X. Pyrophlyctis.—An inflammation which shows itself generally by a vesicle on the surface, containing a purulent matter or an acrid sanies. It excites a pungent or tingling pain, and terminates in a scab or ulcer. This *phlyctæna* is almost always single; it is excessively rare to see many existing at the same time. *Pyrophlyctis* is reputed contagious.

SPECIES 1. *P. sporadica* (*Pustule maligne*); 2. *P. endemica*, (*Bouton de Bagdad,—de Bassora,—d'Alep.*)

GENUS XI. CARBUNCULUS.—An inflamed swelling, circumscribed, round, hard, and resistent, which has its seat in the cellular tissue of the skin. It is at first of a livid red colour, it then becomes black in the centre, and finally, through its whole extent. It is surmounted by one or more lenticular vesicles. It is rapid in its progress, converting the soft parts into a brown or grey slough. *Probably* contagious. It occurs in domestic animals, as well as in man.

SPECIES 1. *C. sporadicus*; 2. *C. endemicus*; 3. *C. symptomaticus*.—The *Carbunculus symptomaticus* frequently accompanies the plague and other pestilential diseases, but must not be confounded with the buboes which also occur in similar affections. These tumours, unlike the buboes, have no fixed seat; they are frequently observed on the face, arms, thighs, and other parts of the body.

GENUS XII. FURUNCULUS.—An inflammation characterized by a hard, conical, and pyramidal tumour, with lancinating pain, of a dull red colour, varying in size from a juniper berry to a filbert or a pigeon's egg, terminating in suppuration, with the evacuation of a false membrane or slough. The suppurative matter may escape by one or more openings. In some cases the inflammation is slow; the symptoms are chronic and unattended by pain; the swelling softens, dries, and is covered with a slight scab, without the discharge of any membrane-like substance.

SPECIES 1. *F. vulgaris*; 2. *F. vespajus*; 3. *F. pannulatus*; 4. *F. atonicus*.

"It appears to me," observes M. Alibert, "a point of great importance to collect into one group those alterations of texture which are the primary results of an inflammatory state of the dermatic tissue. The separation of these affections from the *Exanthemata*, properly so called, is of the greatest utility." On this principle have the twelve preceding genera, possessing many positive, and perhaps even more negative characters in common, been grouped together, although they vary as widely as possible in the primitive form of the eruption. Several of these affections have been excluded by former writers on cutaneous diseases, because the subcutaneous cellular membrane is generally implicated; but this M. Alibert considers as a part of the dermatic tissue, and appertaining therefore by right to the dermatologist.

The word *Eczema* has been used throughout by our author in the generic definitions to express the state of inflammation; but I have thought it better to avoid the introduction of this term, as it might be confounded in England with the disease to which Willan, very inaptly, has applied this word.

GROUP II.—EXANTHEMATA.

The *Exanthemata* are characterized by eruptions of various kinds, preceded by fever of a fixed duration, which declines as the eruption appears. The eruption goes through certain regular periods, and occupies only a fixed time, when it gradually recedes and ends by desquamation. It is frequently followed by a second accession of fever. These diseases generally occur only once, and are especially observed in the earlier periods of life. The eruption, which prevails more or less over the whole body, is mostly marked by redness and swelling; but there is not, as in the last group, the pain of inflammation, though the surface is often tender and irritable.

GENUS I. VARIOLA. An acute febrile contagious *exanthema*, characterized by phlegmonous pustules on the surface, which appear between the third and fifth day from the commencement of the fever; then fill with purulent matter, become depressed in the centre and dry into scabs, which eventually fall off, leaving after them spots, depressions, or cicatrices of various depth and durability. This disease usually occurs only once during life.

SPECIES 1. *V. discreta*; 2. *V. confluens*; 3. *V. mitigata*. Several varieties may exist in the character of the pustules or *varices*. They may be, 1. *crystallinæ*, filled with serum only; 2. *siliquosæ*, flaccid and nearly empty; 3. *verrucosæ*, hard and slowly suppurating; 4. *tuberculosæ*, as seen among the Negroes of Africa and America; 5. *gangrenosæ*; 6. *roseæ*, when the swelling and redness is so general that the pustules can scarcely be distinguished.

GENUS II. VACCINA. A contagious exanthema characterized by large circular pustules, depressed in the centre, prominent at the circumference; surrounded by a red inflammed effloresence, containing a viscid fluid, which dries and becomes a scab. This scab turns brown, and falls off about the twenty-fifth day, leaving a large reticulated depressed cicatrix. *Vaccina* can only occur once in the same individual.

SPECIES 1. *V. genuina vel regularis*; 2. *V. abnormis*.

GENUS III. CLAVUS. A febrile exanthema, peculiar to sheep; excessively contagious; characterized by flat circular pustules, which are compared to nail-heads. The pustules, more or less abundant, are chiefly observed on those parts of the skin least covered with wool, as the inner side of the shoulders and legs, about the mammæ and tail, &c. Like *variola* and *vaccina*, this disease only attacks once during life.

SPECIES 1. *C. discretus*; 2. *C. confluens*; 3. *C. abnormis*.—This disease, which on the Continent is often fatal to whole flocks, appears to be quite unknown in England. In the midland counties, those best acquainted with such subjects assure me, that they are ignorant of the existence of any disease of this nature, nor can I find any mention of it in works dedicated to the diseases of sheep. It has been fully proved by experiments conducted in the veterinary school of Alfort, that *clavus* can be propagated by inoculation (*clavélisation*,) and that this operation prevents the recurrence of the disease.

GENUS IV. VARICELLA. A contagious but not severe exanthema, preceded by slight fever, characterized by an eruption of vesicles or pustles, somewhat analogous to those of *variola*. The vesicles or pustules are sometimes distant sometimes collected together; they are surrounded by a red areola, and generally terminate about the fifth or seventh day, with a slight furfuraceous desquamation, which rarely leaves any cicatrix. The disease occurs only once during life.

SPECIES 1. *V. vesicularis*; 2. *V. pustularis.*

GENUS V. NIRLUS. (*Nirles*, of Scotland) An exanthema characterized by distinct, prominent papulæ of a dull red colour, appearing after an ephemeral fever, never suppurating, but terminating by absorption, or occasionally by desquamation.

SPECIES 1. *N. idiopathicus*; 2. *N. symptomaticus.*

GENUS VI. ROSEOLA, a fugitive exanthema, which manifests itself spontaneously in one or more parts of the surface, by spots of a rose-red colour, appearing and disappearing in the course of four-and-twenty hours. It is almost always preceded by a slight febrile paroxysm; sometimes there is complete apyrexia.

SPECIES 1. *R. idiopathica*; 2. *R. symptomatica.*

GENUS VII. RUBEOLA, an acute febrile exanthema, contagious, marked by an eruption of spots of a bright red colour, afterwards becoming darker, *commencing on the face, and thence spreading gradually over the trunk and extremities*, and terminating by furfuraceous desquamation. The disease commences with frequent sneezing, a dry and hoarse cough, lacrymation, and redness of the eyes. It occurs but once during life.

SPECIES 1. *R. regularis*; 2. *R. abnormis.*—Under the second species may be ranked as varieties, 1. the *adynamica* of Watson; 2. the *maligna* of Morton; 3. the *scorbutica* of Hoffmann; 4. the *nigra* of Willan; 5. the *sine catarrho* of the same author, which Alibert is inclined to consider rather as a variety of Roseola; 6. the *dysenterica*, as observed at St Louis; 7. with inflammation of the brain; 8. the *comatosa* of Heberden, and several others.

GENUS VIII. SCARLATINA.—An acute febrile and contagious exanthema, characterized by small red spots or large patches of a scarlet colour, often mixed with miliary vesicles. The eruption commences on the face, and, passing from thence to the neck, spreads over the rest of the body; it is accompanied by redness and pain of the throat, and terminates, after some days, by desquamation of the epidermis. It rarely attacks the same individual twice.

SPECIES 1. *S. simplex vel genuina*; 2. *S. abnormis.*—The first species includes the *Scarlatina anginosa* of Willan, as Alibert considers the sore throat one of the regular and natural symptoms of the disease. Under the second are included all the varieties in which the disease does not go through its stages in a regular manner, from whatever cause the irregularity may arise. Thus we have 1. the *inflammata*; 2. *gastrica*; 3. *mucosa*; 4. *adynamica*; 5. *maligna*; 6. *gangrenosa*; 7. *parotidæa*, to which might be added a crowd of others. The *Scarlatina simplex* of Willan and Cullen, (*nulla comitante cynanche,*) should be enumerated also as a variety of the second species.

GENUS IX. MILIARIA.—An acute febrile exanthema, reputed contagious, characterized by an eruption of white or reddish vesicles of the size of a millet-seed, distinct, filled with a serous fluid of a white, red, or purplish colour, bursting the second or third day, and terminating in a scurfy powder.

Species 1. *M. genuina vel simplex ; 2. M. abnormis.*

It is scarcely possible to imagine a more beautifully natural family than the one we have just considered. We have not thought it necessary to introduce some peculiar pathological opinions, entertained by M. Alibert on the subject of these affections, ("une sorte de fermentation interne qui a pour but ultérieur la santé de l' homme,") as they do not in any degree affect the principle of the arrangement.

GROUP III.—TINEÆ.

The *Tineæ* are characterized by the irritation in a greater or less degree of the hairy scalp, with a hyperemic state of its vessels, attended by itching, and a sort of tensive pain more or less violent as the disease is more or less deeply seated in the dermatic tissue. The proper seat of these affections is always the hairy scalp; and it is only by a kind of *error loci* that they sometimes occur on other parts of the body. They are mostly chronic diseases, proper to infancy and childhood, yielding with difficulty to remedies, and if cured suddenly generally producing severe constitutional disturbance, but commonly disappearing spontaneously at puberty. The most common exciting cause of this group of diseases is the want of cleanliness and wholesome nourishment. They are all attended with diseased alteration of the cutaneous secretion, giving rise to morbid products, of a more or less fetid smell, generally without ulceration or pustulation.

Genus I. Achor. *(Porrigo larvalis,* Willan.) A tinea characterized by thin incrustations, sometimes distinct and separate, sometimes united in extensive patches, having their seat in the hairy scalp, round the ears, the forehead, the temples, the face, and sometimes even over the whole cutaneous surface. These incrustations are the result of an abundant flow of mucosity, which dries and forms lamellæ of a pale yellow colour.

Species 1. *A. mucifluus ; 2. A. lactuminosus, (Crusta lactea.)*

Genus II. Porrigo. A tinea presenting itself under several different aspects; sometimes it is marked by small scales, flat or convoluted, developed at the root of the hair, and separated from it easily by scratching; sometimes by brown irregular scabs, friable under the finger, often very hard, resembling the grain of certain plants; and sometimes by simple roughness or cracking of the epidermis, which leads to partial baldness. This affection is accompanied by an itching more or less intense. The scalp is often bathed with a fetid humour, not unlike rancid butter.

Species 1. *P. furfuracea ; 2. P. amiantacea ; 3. P. granulata ; 4. P. tonsoria, (Porrigo decalvans,* Willan.)

Genus III. Favus. A tinea which usually occupies the hairy scalp, although it may exist in any other part of the body. It is characterized by scabs, or rather rounded incrustations, of a yellow colour, alveolar, or cup-shaped, depressed in the form of a honeycomb. These scabs or incrustations are sometimes distinct, sometimes contingent, spreading over a greater or less extent of surface, sometimes united and conglomerate, forming thick round isolated patches.

SPECIES 1. *F. vulgaris; (Porrigo lupinosa,* Willan;) 2. *F. scutiformis,* (*Porrigo scutulata,* Willan.)

GENUS IV. TRICHOMA. (*Plica Polonica* of authors.) An endemic tinea generally preceded by pain of the head, and a furfuraceous desquamation of the scalp. It is sometimes characterized by pains in the joints, sometimes by atrophy of the nails, and an extraordinary interlacing of the hair, which is either divided into several rope-like appendages, or united into one solid compact mass, and attended by fetid, or sometimes sanious exhalation.

SPECIES 1. *T. genuinum ;* 2. *T. spurium.*

It may surprise the English physician, to learn that M. Alibert entertains considerable doubts as to the contagious nature of any of the tineæ. A number of experiments have been made at the Hospital of St Louis, to communicate the disease by inoculation without success; plasters even have been made with the incrustations of Favus, supposed to be the most contagious form, and worn by healthy children for some time without any result which could warrant the suspicion of contagion.

These are certainly strong facts, and as yet we know of none of sufficient authority to overthrow them. I must, however, confess, that I cannot entirely get rid of my former conviction of the contagiousness of certain of the tineæ; but I am too well aware how difficult the subject of contagion is, and how much more prone we all are to be influenced by vulgar prejudices, than by philosophic deductions—let the history of the late epidemic witness to the truth of this assertion—to give any thing like a positive opinion on a subject which must still be considered *sub judice.*

GROUP IV.—SERPIGINES.

This group is composed of chronic diseases, rarely attended with much pain, consistent with a perfectly healthy performance of all the vital functions, and particularly characterized by a disposition to spread insensibly or creep *(serpit per totum corpus)* from one part of the surface to another. These affections are but little influenced by treatment, and after having been once established, are particularly liable to return. They are not confined to any age, sex, or condition.

GENUS I. HERPES. (*Lepra and Psoriasis,* Willan.) A disease characterized by a collection of very minute serous vesicles, terminating in scurfs or scales forming one or more irregular patches, on one or more parts of the integument, and attended with more or less itching. Generally unaccompanied by fever. These patches may increase in size, by gradually and insensibly extending themselves over the surface, or they may entirely disappear in one part, and show themselves afresh in another.

SPECIES 1. *H. furfuraceus;* 2. *H. squamosus.* The first species includes two varieties, *Herpes furfuraceus volaticus,* so called from the facility with which the powdery scurf detaches itself from the skin; and the *Herpes furfuraceus circinatus,* from the round patches which it usually forms.

The second includes five varieties, 1. *Herpes squamosus madidans;* 2. *Herpes squamosus scabioides;* 3. *Herpes squamosus orbicularis;* 4. *Herpes squamosus centrifugus;* 5. *Herpes squamosus lichenoides.*

GENUS II. VARUS. (*Acne,* Willan.) A disease essentially characterised by spots, pustules, tubercles, or excrescences of various form, size and figure, which alter the features and modify the skin of the face in various degrees, and which may extend also to other parts of the body.

SPECIES 1. *V. comedo vel sebaceus;* (*Acne punctata,* Willan;) 2. *V. miliaris vel frontalis* (*Acne simplex,* Willan;) 3. *V. hordeolatus;* 4. *V. disseminatus;* 5. *V. gutta rosea,* (*Acne rosacea,* Willan:) 6. *V. mentagra,* (*Sycosis,* Willan.)

GENUS III. MELITAGRA, (*Impetigo,* Willan.) An affection marked by an eruption of small pustules, sometimes distinct and disseminated, sometimes confluent and congregated in clusters, yielding a sero-purulent secretion, which coagulates on exposure to the air, and forms yellow incrustations or scabs, in appearance precisely resembling concrete honey, or the gum which exudes from certain trees.

SPECIES 1. *M. flavescens;* 2. *M. chronica.*

GENUS IV. ESTHIOMENOS.—(*Lupus,* Willan.)—A disease most frequently characterized by a tuberculous inflammation, attended with itching, redness, and heat. The most remarkable phenomenon of the disease is its disposition to corrode *or ulcerate* the skin and subjacent tissues, either by confining itself to one spot, or by passing successively to different parts, in a creeping and tortuous course.

SPECIES 1. *E. terebrans vel perforans;* 2. *E. ambulans vel serpiginosum.* The first species is generally confined to the face, and is particularly apt to attack the alæ of the nose. The second may invade any part of the body, and is often seen on the neck, breast, loins, and abdomen, as well as on the upper and lower extremities.

This group includes those diseases which in France are commonly known under the name of *Dartres,* and which were formerly known in England under a corruption of the same word, *Tetters,* though the term is now almost obsolete. Diseases, however, so common will have vulgar names, and the uninitiated have therefore called them *scurvy,* from the scurf or scale which is so often seen in this group. The would-be-wise doctor has again corrupted this simple term into *scorbutic affections,* and thus united them to a totally different disease; while Willan, to complete the confusion, called the most common form *lepra,* a name at which biblical history has taught us to tremble. It would not be difficult to show that this strange misnomenclature has had its effect in leading astray many of our brethren, among whom the persuasion of the hereditary descent, and the incurable nature, &c. of these complaints is far from rare.

The genus *Herpes* might at first sight be thought to include diseases of very different characters; since it comprises, in addition to the genera *pityriasis, psoriasis* and *lepra* of Willan, some forms even of *impetigo* and *eczema ;* but if the opinion of M. Alibert be correct, that the disease commences with "minute serous vesicles," and that the formation of scales is only secondary, the arrangement is perfectly natural and correct. Bateman himself remarks, that *impetigo* in its advanced state is " daily mistaken for *psoriasis* or *lepra ;*"—" but," he continues, " the scaly diseases emit no fluid, and the very existence of a discharge, however slight, is sufficient to determine the diagnosis of the eruption." We can ourselves speak with confidence to the error of this test, of which any one may convince himself, by wrapping in oiled silk, so as to prevent evaporation, any part affected with *psoriasis,* or frequently even by comparing the state of the exposed and covered parts of the same individual. Though not entirely agreeing with M. Alibert, that *herpes,* (*lepra* and *psoriasis.*) always commences with " vesicles," though we know that many others entertain the same opinion, (Dr Macartney, if we mistake not,) we feel assured, that it appears very frequently in this form, without being in any respect changed in nature or character. If we might venture to propose any alteration in this group, it would be the transposition of *varus* and *melitagra,* as we think the latter is most nearly allied to *herpes,* and the former to *esthiomenos.*

GROUP V.—CANCRODES.

These diseases are characterized by their slow and insidious attack, by their induration, subsequent ulceration, and tedious duration ; by their resistance to all internal remedies, and their disposition to return in the neighbouring or remote parts after removal by operation. The *cancrodes* are attended by consecutive fever, and mostly accompanied by very severe, deep-seated, lancinating pains. They are probably hereditary ; never contagious.

GENUS I. CARCINUS.—A disease characterized by a small tumour, at first indolent, then accompanied by slight itching, which induces the patient to scratch it, and eventually by a severe pungent and lancinating pain. *Carcinus* generally attacks the most sensible and irritable parts of the skin.

SPECIES. 1. *C. tuberculosus ;* 2. *C. verrucosus* (Soot-wart, chimney-sweep's cancer ;) 3. *C. melaneus (Anthracine ;)* 4. *C. eburneus ;* 5. *C. globosus ;* 6. *C. medullaris.*

GENUS II. KELIS. A cancerous affection, characterized by one excrescence, rarely by more than one, more or less prominent, hard, resistent under the finger when compressed ; sometimes cylindrical; sometimes round or square, flattened in the centre, elevated at the edges, so as to form a border ; the lateral parts project like roots implanted into the skin, sometimes resembling the cicatrix of a burn.

Species 1. *K. genuina*; 2. *K. spuria.*

M. Alibert has adopted the name *Carcinus* for those superficial carcinomatous affections which confine themselves to the skin and subcutaneous membrane, to distinguish them from *cancer*, as affecting the glands and other deep-seated tissues. The existence of the genus *kelis* has been denied; but our author has had repeated opportunities of seeing it, and establishing its identity.

Group VI.—Leprodes.

This group includes several important constitutional affections, manifesting themselves by local degenerations and morbid alterations of various forms, and generally attended by more or less diminution of the sensibility, or numbness of the parts affected. They attack insidiously, and almost insensibly; resist all known means of cure; are exceedingly chronic in duration, and rarely terminate but with life. The leprodes are frequently hereditary in origin, but seem particularly favoured by certain climates and situations, by bad food, sordid living, and mental depression. The dermatic tissue is affected through its whole thickness, and often morbidly hypertrophied. These diseases are not contagious.

Genus I. Leuce. (*Zaarah* of Moses, the Lepresy.) A lepra, characterized by spots, at first white, afterwards of an ash-gray, or sometimes of a slightly green colour, circumscribed, round, surrounded by a red areola, passing through regular periods, and becoming eventually of a horny consistence, depressed in the centre, and deprived of sensibility. In some cases, the disease appears in the form of orbicular rays or rings, like those observed on the skin of serpents.

Species 1. *L. vulgaris vel alba*; 2. *L. radiata vel tyria.*

Genus II. Spiloplaxia. A lepra characterized by irregularly furrowed, tubercular incrustations, offering a rough unequal surface, intersected by deep fissures. These incrustations, which form patches of various sizes, on one or more parts of the integument, have a greater extent and greater thickness than those observed in any other disease of the skin. When the scab falls off, the cicatrix which remains is never obliterated.

Species 1. *S. vulgaris, seu malum mortuum*; 2. *S. scorbutica*; 3. *S. Indica.*

Genus III. Elephantia. A lepra characterized by spots, generally circular, of a yellowish-brown, or sometimes of a livid red colour, which are followed by roughness and irregularity of the surface, and by the formation of fissures and tubercles. The skin loses its sensibility in many parts. This disease is especially marked by the great tumefaction which prevails through the whole thickness of the integument. The change or deformity which it produces of the features, is one of the most striking phenomena of the affection; the swelling of the hands and feet, as well as of the articulations, is also a common symptom.

Species 1. *E. vulgaris*; 2. *E. tuberosa*; 3. *E. scrotalis.*—It is to the first of these affections, which generally attacks the face, and which commences in a tubercular form, that Bateman has applied the name Elephantiasis. The second species, the Barbadoes leg of the English authors, M. Alibert has called *tuberosa,* to indicate that it presents the form of *tuberosities* rather than of *tubercles.*

GENUS IV. RADESYGE. An endemic disease, commencing by heaviness, lassitude, torpor and insensibility of the limbs, with nocturnal pains in the joints, which terminate in the morning with clammy, viscous sweatings. The face is sometimes pale, sometimes red or bluish. After some time, spots more or less distinct make their appearance, followed by nodosities, furrows, cracks, tubercles, callosities, and callous ulcers.

SPECIES 1. *R. vulgaris; 2. R. scorbutica.*

M. Alibert has applied the word Lepra in the sense in which it was used by the Greek translators of the Arabian writers, who included under it the *leuce* and *elephantiasis.* The former of these diseases, *leuce,* answers more completely than any other at present known, to the *zaarah* of Moses, which word was also translated by the Greeks *lepra.* That these diseases are not considered contagious, is no argument against their identity; for we know how obscure a subject that of contagion is, and how exceedingly ready the world is to attribute this property to almost every disease. M. Alibert has had opportunities of examining every form of the disease, and has never been able to trace its propagation by contagion. During the clinical lectures of 1832 at St Louis, M. Alibert was able to show us four cases of the tubercular *elephantiasis* of the face (*Elephantia vulgaris,*) and several of the Barbadoes leg, (*Elephantia tuberosa,*) some of which have remained with the other patients in the hospital for a considerable time, and have been repeatedly touched both by the Professor and his pupils without any ill effects. In the countries in which the tubercular *elephantiasis* prevails, however, it is still considered eminently contagious, and the affected are rigidly secluded from all intercourse with their fellow men.

Well authenticated cases of *leuce* are so exceedingly rare, that I cannot resist quoting at length one of those reported by M. Alibert from actual observation. The case occurred at the Hotel-Dieu, Paris, under the care of M. Recamier. "The patient was a woman of 35 years of age, small in stature, slightly made, and of a weak habit of body. Her childhood had been unhealthy, and had been crossed by a variety of misfortunes, which it would occupy us too long to relate. About the age of 34, she received a violent blow on the *mammæ,* and soon afterwards observed, chiefly on the left side, a number of small white vesicular pustules, which went on to suppuration. These pustules spread over the whole anterior and inferior parts of the thorax, where the patient experienced a sensation of burning heat. After the lapse of some months, spots of an ash-gray colour, at first on a level with the surface of the skin, were observed on her thin and flabby *mammæ.* These spots were surrounded by a reddish circle of a pale rose colour, while the surrounding integuments remained quite healthy. After a time, other similar spots made their appearance; the first became dry, and assumed a brownish tint, the surrounding circle remaining of the same extent, but of a paler colour. The following were the several stages through which the disease was observed to pass: 1. The spots or scales, while recent, were exactly on a level with the surface of the skin; they were of a pearl grey colour, or sometimes white, shaded with green; they were resistent to the touch, and were surrounded by a bright red *areola*. 2. In proportion as the disease developed itself, the spots were seen to *darken, harden*, and become *depressed*. The *areola* was still present, but the affected part had now quite lost its sensibility. 3. At last the spots assumed a very hard consistence, became, if I may use the expression, coriaceous, and the *areola* entirely disappeared. On some parts of the same breast we observed the remains of former scales, quite dried up. After the fall of those of whose progress we have been speaking, the skin retained the impressions in the form of cicatrices. Such was the slow but regular progress which this dreadful disease pursued, and under which the patient sunk after a long course of suffering."*

GROUP VII.—AISCHRODES.

A group of exceedingly contagious diseases, frequently propagated by sexual intercourse, attacking by preference the face, head, and organs of generation. The cutaneous eruption is often preceded by a slight febrile attack. These diseases are slow in their progress, and are liable to affect secondarily almost every tissue in the body, especially the osseous. It seems probable, though it is not yet sufficiently well established to warrant us in considering it as a character of the group, that mercury possesses an almost specific power in all these affections.

GENUS I. SYPHILIS. A contagious disease, more or less rapidly contracted by impure contact, generally characterized externally by spots of a coppery-colour, by pustules, vegetations, excrescences, ulcerations, swellings, tumours, and imposthumes; internally by caries and deeply seated pains in the bones.

SPECIES. 1. *S. pustulans*; 2. *S. vegetans*; 3. *S. exulcerans.*—These three species include an immense number of varieties, some of which appear to us to possess sufficient importance to form separate species. The first, or *Syphilis pustulans*, contains twelve; we shall only give the names, as they are generally so well selected as to express with sufficient clearness the nature of the affection. 1. *Squamosa*; 2. *Crustacea*; 3. *Pemphigoides*; 4. *Lenticularis*; 5. *Racemiformis*; 6. *Cerasiformis*; 7. *Miliaris*; 8. *Urticata*; 9. *Serpiginosa*; 10. *Scabioides*; 11. *Varioloides*; 12. *Tuberculosa.*

The second species, *Syphilis vegetans*, contains six varieties; 1. *Frambœsia*; 2. *Cauliflora*; 3. *Crista-Galli*; 4, *Porriformis*; 5. *Verrucosa*; 6. *Condyloma.*

The third species, *Syphilis exulcerans*, has only three varieties; 1. *Serpiginosa*; 2. *Excavata*; 3. *Fissata.*

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* Alibert, Monographie des Dermatoses, 4to, p. 488.

Genus II. Mycosis. A *contagious* disease, characterized by fungous excrescences, which manifest themselves principally on the face, hairy scalp, and about the organs of generation. These excrescences, in form resembling the fruit of the mulberry or strawberry, give out a yellow, fetid, and viscous humour; they occasionally form tumours of considerable size; sometimes they are attended by coryza, hoarseness, ulceration of the tonsils, pains of the bones, &c. &c.

Species. 1. *M. frambesioides,* (*Frambœsia,* Willan;) 2. *M. fungoides,* (*Molluscum,* Willan, *Verole* of Amboyna, *Pian, Pocken,* &c. &c.;) 3. *M. Syphiloides,* (*le Mal de Fiume, Scherlievo, Sibbens,* of Scotland, *Fungine* of Ireland, &c. &c.)

There can be little doubt that there exists a certain analogy between *syphilis* and *mycosis,* which has been described under as many different names as the situation in which it has been observed; but how far this extends, future and more accurate observations must disclose. From the relative situation in which M. Alibert has placed these diseases, it will be much more easy to appreciate the affinities and relations by which they are allied to other affections.

GROUP VIII.—STRUMÆ.

These are chronic affections of the skin of various forms, generally with glandular swellings, which are apt to terminate in ulcerations, and are little affected by any known remedy. The *strumæ* are undoubtedly hereditary, and seem to depend on a certain constitutional diathesis, the nature of which is little understood, but which may show itself in every tissue of the body, and would seem to consist essentially in a disposition to deposit tuberculous matter.

Genus I. Scrofula. An affection which declares itself on one or more parts of the integument by the hypertrophy, induration, and prominence of the lymphatic glands; by the formation of spots, scales, tubercles, and pustules, followed by ulcerations, incrustations, hypertrophies, cellular vegetations of the skin, &c. These tumours or swellings, the result of a morbid change, as yet but little understood, have their special seat in the glands, as the parotid, submaxillary, sublingual, cervical, &c. The genus taken collectively presents itself under two opposite aspects; in the one, the patient has a florid colour, and the external appearance of a healthy and robust constitution; in the other, the face is thin and pale, the eyes dull, and the whole appearance that of wasting and decay.

Species 1. *S. vulgaris vel sporadica;* 2. *S. endemica.*

Genus II. Farcimen. (Farcy or Glanders.) An affection peculiar to domestic animals, especially characterized by the developement of a greater or less number of small tumours, globular or oval, flattened or elongated, circumscribed, resistent, placed immediately under, or in the substance of, the skin, at first painful, but becoming indolent after some time.

Species 1. *F. benignum ; 2. F. malignum.*

From the observations of Dr Elliotson on farcy and glanders in the human subject, the opinion of M. Alibert, that the farcy in domestic animals performs exactly the same part as scrofula in the human subject,—would appear in some degree questionable. It seems pretty well proved that the disease is contagious, and may be communicated from animals to man, and again from man to animals, and that in man it has proved rapidly fatal, and been attended with symptoms quite foreign to any known form of scrofula; on the other hand, the deposition of "grey tubercles,"—the inflammation and swelling of the lymphatic glands and vessels, —the suppuration and peculiar appearance of the ulcers in the chronic farcy—are certainly favourable to the opinion of the scrofulous nature of the affection, and at least render the question worthy of further examination.

Group IX.—Psorodes.

These diseases are especially marked by a severe sense of itching, which, though not peculiar to the *psorodes,* is in them so much more constant and important a symptom than in any other of the Dermatodes, that it has been justly selected to characterize the group. The form of the eruption is various and uncertain, and is sometimes accompanied by the presence of *pediculi.* These diseases are almost peculiar to the filthy and ill-fed; they are little inclined to cure spontaneously, but, except in certain forms, yield readily to treatment.

Genus I. Scabies.—An eruption common to man and many domestic animals. This disease, in its true form, is eminently contagious; it is marked by vesicles, pointed at the top, wide at the base, generally distinct, yielding a fluid commonly serous, but sometimes purulent; especially characterized by violent itching. This disease attacks alike either sex, and every age; it extends over the whole body, *except the face,* but is most common about the interstices of the fingers, the inner surface of the wrists, the folds of the elbows and knees, under the axilla, on the lateral parts of the abdomen, on the thighs, &c.

Species 1. *S. exquisita ; 2. S. spuria ; 3. S. pecorina.*

Genus II. Prurigo.—A non-contagious eruption, characterized by papulæ, occupying one or more parts of the integuments, varying in number and extent, sometimes red, but more frequently of the colour of the skin, *and often interspersed with small black scabs produced by scratching.* The appearance of these papulæ is always attended by an acute sensation of itching, which must be in this case regarded as a special and characteristic symptom.

Species 1. *P. lichenoïdes vel furfurans ; 1. P. formicans ; 3. P. pedicularis ; 4. P. latens.*

I am at a loss to conceive why M. Alibert should have placed this group in the situation it now occupies between the *Strumæ* and *Hæmatodes,* with which it does not appear to have the most distant affinity. I should be inclined rather to place it between the *Tineæ* and *Serpigines*, to which it appears much more naturally related.

GROUP X.—HÆMATODES.

This group is composed of a peculiar class of affections, characterized by discoloration of the skin, caused by an effusion of blood under the *epidermis*. On what this curious phenomenon may depend, is yet a mystery; but it seems probable that it arises either from disease of the minute blood-vessels, or perhaps more likely from a morbid state of the vital fluid itself.

GENUS I. PELIOSIS.—(*Purpura*, Willan.)—An affection characterized by spots of a red, purple, or livid colour, occasionally of a very considerable size, sometimes but small, arising from the effusion of blood between the cuticle and true skin, and accompanied by hæmorrhagies which are excited by the slightest causes. These spots are sometimes distinct, sometimes in groups; they are rarely attended with fever.

SPECIES 1. *P. vulgaris*; (*Purpura simplex*, Willan;) 2. *P. hæmorrhagica*; 3. *P. contusa.*

GENUS II. PETECHIA.—An affection characterized by small spots scattered over the surface of the skin, generally of a red colour, though often livid, violet, or black; sometimes resembling flea-bites, sometimes small freckles; with or without fever; remaining a longer or shorter period; varying much in size, sometimes forming an almost imperceptible point.

SPECIES 1. *P. primaria vel idiopathica*; 2. *P. secundaria vel symptomatica.*

GROUP XI.—DYSCHROMATA.

This group includes a number of rather curious than important affections, characterized solely by anomaly either of excess or defect of the colouring matter of the skin; they may be congenital or accidental.

GENUS I. PANNUS.—An affection characterized by one or more spots, disseminated or collected together in a greater or less quantity on the surface of the human skin, of which the form and colour are more or less anomalous.

SPECIES 1. *P. lenticularis*, (Freckles); 2. *P. hepaticus*; 3. *P. melaneus*; 4. *P. carateus.*

GENUS II. ACHROMA.—An affection characterized by white spots, quite different from the natural colour, generally oval, of various extent, sprinkled over the body like drops of rain. The power of sensation is frequently either partially or entirely lost in the affected parts. The decoloration is sometimes universal.

SPECIES 1. *A. vitiligo*; 2. *A. congeniale.*

GROUP XII.—HETEROMORPHEA.

Under this group are included a number of affections which appear to bear no definite relation to any other known diseases, nor to possess any affinity with each other, and which are therefore arranged together merely for the sake of convenience.

Genus I. Ichthyosis.—An affection which appears on one or more parts of the integument, in the form of scales, more or less hard and resistent, of a pearly or grey colour, imparting to the human body the appearance proper to the skin of fish or serpents. The *epidermis* often assumes a horny consistence.

Species 1. *I. nitida*; 2. *I. serpentina*; 3. *I. cornea.*

Genus II. Tylosis. (Corns.)—An affection characterized by dry, hard, lamellated callosities, moveable or fixed, formed in the cellular layer of the skin, mostly occurring about the sole of the foot and on the toes. They are almost always brought on by the pressure of tight shoes, which pressure, if continued for any length of time, inflames the skin, and renders it exceedingly painful.

Species 1. *T. gomphosa*; 2. *T. indurata*; 3. *T. bulbosa.*

Genus III. Verruca.—An affection characterized by sessile or pedunculated excrescences, sometimes moveable, sometimes fixed, and nearly of the natural colour of the skin. Their surface is hard, rugged, and almost indolent. This kind of vegetation is for the most part scarcely susceptible of inflammation.

Species 1. *V. vulgaris*; 2. *V. acrochordon.*

Genus IV. Onygosis.—An affection characterized by inflammation, with pain, redness, and swelling of the matrix of the nail, and malformation, induration, or other morbid change of the substance of the nail itself.

Species 1. *O. acuta*; 2. *O. chronica*; 3. *O. per incarnationem*; 4. *O. per fœdidatem.*

Genus V. Dermatolysis.—An affection characterized by an unnatural extension of the skin, arising from a peculiar change in the contractile power of this membrane.

Species 2. *D. palpebrarum*; 2. *D. faciei*; 3. *D. collaris*; 4. *D. abdominalis*; 5. *D. genitalium.*

Genus VI. Nævus.—A congenital affection, characterized by spots, most frequently solitary and scattered, by vesicles, cysts, warty or steatomatous excrescences, of an infinite variety of forms and colours.

This group is from its very nature imperfect. But though it may, and probably will, frequently undergo modifications and changes, these will in no degree affect the general principles on which the method is founded.

Fig. 1.

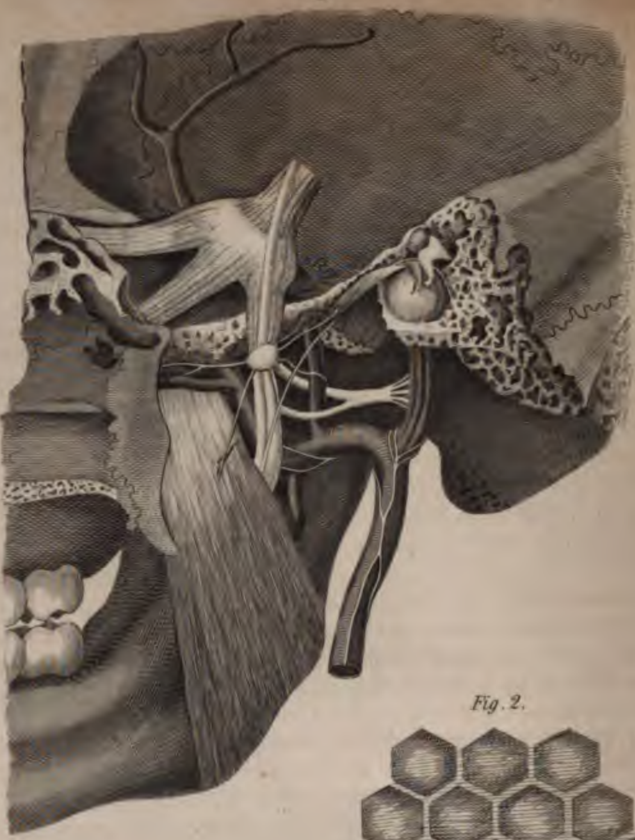


Fig. 2.

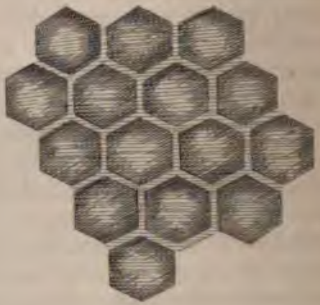


Fig. 3.

Fig. 4.

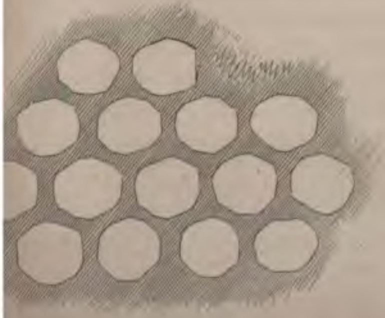
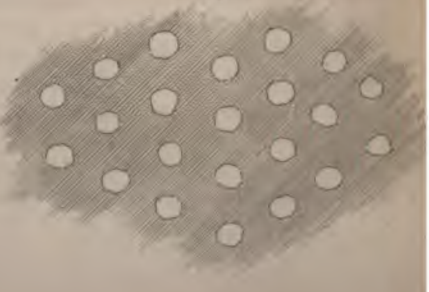


Fig. 5.



ART. II.—*Anatomical and Physiological Description of the Otic Ganglion.* Extracted from Arnold's "Kopftheil des vegetativen Nervensystems beim Menschen," (The Cephalic part of the Vegetative Nervous System in Man.) Translated from the German by WILLIAM SALMON TYLEE, Esq. Devizes. *

THE *ganglion oticum sive auriculare*, called also by Professor Tiedemann, *Ganglion Arnoldi*, is situated at the internal side of the third branch of the *trigeminus*, (*vid.* plate,) immediately under the *foramen ovale*, at the spot where externally the *nervi temporales profundi*, the *nervus maxillaris*, and *buccinatorius* branch off, a little above the point where the superficial temporal nerve is given off, where the small portion of the fifth pair unites more closely with a branch of the larger, and where the third branch, after passing through the *foramen ovale*, forms a slight swelling. Internally the ganglion is covered by the cartilaginous part of the Eustachian tube and the origin of the *tensor palati*, behind it borders on the *arteria meningea media*, and its external surface is situated on the internal side of the third branch of the fifth pair. I found sometimes a variation with regard to its position, in as much as it was not so closely united with the internal side of the latter nerve, and projected partly over the anterior border of the same, being situated more forward and within than is generally the case. The *ganglion oticum* has an oval form, flattened on either side, and a little elongated horizontally. Its diameters are therefore very different, for in the last direction it measures on an average from 2 to 2½ lines, from above downwards from 1½ to 2 lines, and in thickness only ¼ to at most ½ line. I once observed in a subject that had been idiotic a variation from the general form. The ganglion had here a remarkable resemblance to that in ruminating animals, viz. it was more semilunar in form, the superior border concave and rather thin, the inferior thicker and convex.

With regard to colour and other properties, this ganglion is characterized by its reddish appearance, verging a little towards gray, and its soft consistence. It is a fact well worth attention, and doubtless of importance in a physiological point of view, that the otic and nasal ganglions which belong to the same order of ganglions, present in the human subject and in the calf, with regard to their external character, a relation quite opposed to each other. For the otic ganglion in the human subject resembles in colour, consistence, and size the nasal ganglion in the calf, and the nasal ganglion in the human subject more the otic ganglion in the calf.

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* "Der Kopftheil des vegetativen nervensystems beim Menschen, in anatomischer und physiologischer Hinsicht; bearbeitet von Dr Friedrich Arnold, Prosector und privatdocent an der Universität zu Heidelberg, Mit zehn Kupfertafeln und eben so viel dazu gehörigen Linearzeichungen. Heidelberg und Leipzig, neue akademische Buchhandlung von Karl Groos, 1831."

With regard to the envelope of this ganglion, we must remark, that it is first of all surrounded by a very fine and delicate neurilema, which is pretty closely united with the substance itself, and in which the vessels proceeding to it ramify, and on the outside of this membrane, which is peculiar to it, we find a considerable quantity of cellular tissue and fat, which surrounds it principally within its external surface, as we have before observed, uniting in most cases pretty closely with the internal surface of the third branch of the *trigeminus*. This fat and cellular tissue resembles the cellular membrane of the intervertebral ganglions and those which belong only to the vegetative nervous system.

From the external properties of the otic ganglion we can form some conclusions with regard to its internal structure. It is particularly characterized in appearing to consist of only a reddish-gray ganglionic substance. If we take away the fat and cellular tissue which surround this ganglion, and cut through its peculiar membrane, we observe at first sight only a soft pulpy mass, which in very fresh subjects only possesses any degree of consistence. If we examine this more accurately, we find that it is not merely this substance from which the ganglion is formed, but that also white filaments are interwoven with that substance and proceed through it, some coming from the third branch, in which we must include especially the pterygoid nerve, others belonging to that branch of the *N. tympanicus*, which I designate with the name *N. petrosus superficialis minor.* The union and mixture of these filaments with the ganglionic substance is not so close and intimate as in the ganglions which belong to the vegetative nervous system alone, nor so lax and free as in the intervertebral ganglions. The arteries which the *ganglion oticum* receives are in proportion to its size very considerable and numerous, and this is without doubt partly the cause of its reddish appearance. They all come either from the *art. meningea media*, or immediately from the internal maxillary artery, and proceed to it partly at its posterior, partly inferior border.

Its relation to the fifth pair of the cerebral nerves deserves particular consideration. The *ganglion oticum* is united to the trunk of the third branch of the latter pair, not merely by cellular tissue, but by many filaments, which enter into the formation of the ganglion. These filaments, which come solely from the small portion of the *trigeminus*, (the *nervus crotaphitico-buccinatorius*,) and thus correspond with the short root of the ophthalmic ganglion, are mostly extremely short, and can only be observed when we try to separate the ganglion from the third branch; but in cases where the ganglion is situated rather distant from the third branch, these filaments are of course longer, and can then be more easily observed. With regard to the nerves of the third branch, the pterygoid nerve especially is in very intimate connection with the otic ganglion, so that in a superficial examination it appears as if it arose from it, but in a more accurate investigation it is clear, that this nerve, soon after its origin, penetrates through a part of the substance of the ganglion, and takes up some of it. The slender nerve of the third branch which ramifies in the *tensor palati mollis*, is likewise in very intimate relation with this ganglion, and distinguishes itself from the other nerves of this branch by its reddish appearance.

From what has already been said, it is clear that the *ganglion oticum* communicates partly with the *portio minor quinti paris*, partly with the ninth pair by means of the *N. tympanicus*, and lastly, by means of the latter, with the facial and auditory nerve. These anastomoses are all of importance in physiological consideration, and therefore deserve particular attention. Their office we will hereafter endeavour to estimate. But the union between the *ganglion oticum* and acoustic nerve, before pointed out by me, deserves particular attention. It is effected by a nervous filament arising from the gangliform swelling at the curvature of the facial nerve, and proceeding to the auditory nerve, and also by a branch which arises from the same swelling, and unites with the *N. petros. superf. minor*.

Lastly, we have to describe those nerves which derive their origin from the *ganglion oticum*. They appear soft, delicate, reddish, and agree in their qualities altogether with the ganglion. The most important of them, and that which must be principally attended to, as it shows the particular relation of this ganglion to the organ of hearing, arises at the superior and posterior part of it, and takes its course along the internal side of the *arteria meningea media*, backwards and upwards, penetrates into that part of the Eustachian tube in which the *tensor tympani* is situated, and ramifies in this muscle. This thread distinguishes itself essentially from the *N. petros. superf. minor*, near which it directs its course.

Besides this nerve going to the *tensor tympani*, there are other soft, reddish, delicate filaments, arising from the otic ganglion, which show still more the near relation in which it stands to the organ of hearing. They arise at the inferior and posterior part of the swelling, either single or double, proceed to the two roots with which the anterior auricular nerve from the third branch of the fifth pair goes forth, and unite closely and intimately with them. They probably communicate with the branches of this nerve, which distribute themselves in the external auricular canal and the membrane of the *tympanum*. If we compare the external and internal qualities of the *ganglion oticum* with the other ganglions belonging to the same order, as the ophthalmic, nasal, and lingual ganglions, we find that it bears great resemblance to the ophthalmic ganglion in situation, size, form, structure, and relation to neighbouring parts, approaches also in some degree to the maxillary ganglion, but differs mostly from the nasal ganglion. The otic and ophthalmic ganglions agree very much in relative situation, form, size, and structure, in as much as the former is situated in a similar relation to the third branch of the *trigeminus*, as the latter to the first branch. Both have an elongated flat form, and are not very different from each other in size and structure, although the *ganglion oticum* in the latter respect, as also in colour and consistence, resembles mostly the maxillary ganglion. The ophthalmic and otic ganglions communicate also with two different nerves of the animal system, a nerve for motion and sensation, by means of branches which they receive from them; for the short but considerable filaments from the small portion of the *trigeminus* subservient to the motions of mastication, correspond with the short root of the ophthalmic ganglion coming from the *nervus oculomotorius*, and the long root of the same which is given off by a nerve of sensation, we find in the otic ganglion, as the *nerv. petros. superf. minor*, coming from the ganglion of the glosso-pharyngeal nerve, which is likewise, at least in some degree, a nerve of sensation.

On the Function of the Otic Ganglion.

It is not merely the anatomical character of the otic ganglion in the human subject, and its analogy to the ophthalmic ganglion, so far as it has a relation to the organ of hearing, and especially to the membrane of the *tympanum*, similar to that which the other has to the eye, and particularly to the *iris*, that justify us in concluding the otic ganglion to have the same office in the organ of hearing that the ophthalmic ganglion has in the eye. Researches in comparative anatomy render it also most probable, that the ganglion in question is the central organ for the involuntary motions of the membrane of the *tympanum*. The result of these researches is, *first*, that the otic ganglion is only to be found in those animals which have a *ten-*

sor tympani. As this muscle does not, according to my researches, belong to birds and amphibious animals, but is to be found in the MAMMALIA only, so these alone possess the ganglion in question. The non-existence of a *tensor tympani* in birds and the *Sauri*, is to be conjectured from the particular arrangement of the membrane of the *tympanum* in these animals, for in them this membrane has quite a different direction from that in the *Mammalia*. In the MAMMALIA, for instance, it is internally; in birds and amphibious animals externally convex. If, therefore, a muscle analogous to the *tensor tympani* in the *Mammalia* existed in the animals before-mentioned, the membrane of the *tympanum* must be brought into a direction opposed to its natural position, in order to be put in a state of tension. Such a contrivance would be evidently contrary to every natural arrangement. Besides, the existence of a *tensor tympani* is unnecessary in birds and the above-mentioned *Amphibia*, the membrane of the *tympanum* being considerably extended outwards by the point of the *malleus.**

Secondly, these researches teach us with certainty that the otic ganglion is larger and more intimately and multifariously connected with the organ of hearing,—the larger and more developed the external ear is; indeed, in those animals which have a very large and moveable ear, it is even double. This I found to be the case in the hare, rabbit, horse, and pig, all of which, and especially the former, have a remarkably long ear. In these animals also the communication of the otic ganglion with the nerves of the third branch, which are of important relation to the organ of hearing, is most various and manifold; for not merely a strong thread destined for the *tensor tympani* arises from this ganglion, but also numerous filaments for the anterior auricular masseteric, and pterygoid nerves. Those *Mammalia* which have a tolerably developed external ear, as for instance the ruminating animals, possess a rather large but single otic ganglion; and its communication with nerves from the third branch of the fifth pair is not so considerable; besides the thread which goes to the *tensor tympani*, there is a thick branch intended for the masseteric nerve, but only very slight filaments proceed to the anterior auricular nerve. In those animals which have a moderate external ear, as the cat, dog, marten, hamster, and rat, the otic ganglion is much smaller than in the *Mammalia* before mentioned, and only partly and more slightly connected with the nerves already observed. *Lastly*, we find this ganglion smallest and most inconsiderable where there is no external ear, as in the mole. In this instance the greatest care and patience are required in order to find this extremely small ganglion.

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* Säulchen.

From these two points, namely, that the otic ganglion only exists in those animals which have a *tensor tympani*, and that it is so much the larger, more developed, and more intimately connected with the organ of hearing, the larger and more moveable the external ear is, it clearly results that this ganglion must be considered as the central organ for the involuntary motions of the membrane of the tympanum; for it only exists where there is an apparatus for the tension of this membrane, and is the more intimately connected with the ear, the more numerous the sounds are received by a large and moveable external ear. From this we see evidently that the tension of the membrane of the *tympanum* (by which, as we shall presently show, the effect of a too powerful sound on the ramification of the auditory nerve is moderated) is and must be so much the more considerable, the greater the quantity of sound is received from all directions by the external ear so varied in its formation.

The difference with respect to the motions of the membrane of the *tympanum* must be first considered. Those which take place in consequence of an irritation reflected from the acoustic nerve on the apparatus for moving the membrane of the *tympanum*, are to be distinguished from those which ensue from the fluctuation of the air. The latter are the real motions according with this fluctuation; but the former consist more in a simple tension and relaxation of this membrane, which is produced by a too powerful action of sound on the ramifications of the auditory nerve being imparted, by means of the communication of this nerve with the facial nerve and the connection of the latter with the smaller superficial petrous nerve, to the otic ganglion, which, according to the impressions received, exercises such an influence on the *tensor tympani*, that the membrane is put into a degree of tension according to the power of the sound, in order to prevent a too violent irritation of the auditory nerve.

This opinion agrees both with the fact, that great sensibility to powerful tones generally occurs after piercing the membrane of the *tympanum*, and also with the experiments of *Savart*,* which teach us, *firstly*, that the difference in the height and depth, but not in the power and weakness, of tones have an influence on the vibrations of the *tympanum*, and that the *ossicula auditus* are put into action if the tone becomes very violent; *secondly*, that membranes (during an equal power of sound) vibrate less easily and in a smaller expansion in a state of tension than in a state of relaxation, so that, therefore, by the tension of the membrane of the *tympanum*, the action of sound on the ear is moderated, and the degree of tension increases or diminishes according to the different force of sound in order to impede or facilitate its propagation.

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* Bulletin de la Soc. Philom. 1822, p. 90. ff, and Annales de Chimie et de Physique, Mai 1824, Tom. 26, p. £.

It appears to me that sufficient attention has not hitherto been paid to distinguish accurately and decidedly the difference in the motions of the membrane of the *tympanum*, in so far as they appear in one way as vibrations, and in another as a tension and relaxation of this membrane. Indeed the vibrations of the *tympanum* produced by sound have been called automatical motions. But here a signification has been given to the word *automatical* which does not at all belong to it; for those motions of the membrane of the *tympanum* which ensue immediately from external influences, and depend only on them, cannot be called automatical; but we can only designate with this name those which are produced under the influence of the otic ganglion by the apparatus for moving the above membrane, and must doubtless distinguish them from those motions which consist in vibrations of the membrane, and are produced immediately by the fluctuation of the air.

These two sorts of motion of the membrane of the *tympanum* accord with its double function, namely, in the *first* place, the propagation of sound, though this is not its most important use, as a tympanal membrane would not be altogether necessary for this; and *secondly*, its being a means of protection and a *moderator* to the nervous ramifications in the interior of the ear. In the propagation of sound, this membrane vibrates from the fluctuation of the air, which is necessary when a tympanal membrane exists, for without it the sound cannot be conveyed. This membrane, in acting as a means of protection, does not merely keep off the immediate effect of air and other injurious influences, but moderates the too powerful action of sound on the internal ear. This is effected by the influence which the otic ganglion has on the action of the *tensor tympani*, in consequence of which the *tympanum* is brought into a state of tension, according to the different power of the sound. This kind of motion only of the membrane must be here considered, and in this respect alone the *tympanum* presents a similarity to the *iris*, as this also undergoes changes corresponding with the degree of light falling on it, causing a greater or less contraction of the pupil, by which the influence of too dazzling rays of light, if not altogether kept off, is at least diminished; but the *tympanum*, by being put into vibration from the fluctuation of the air, is distinguished from the *iris*, as this does not exhibit signs of activity immediately from the influence of light, as the experiments mentioned above point out.

The membrane of the *tympanum*, according to the different degree of its tension, like the *iris*, according to the degree of contraction of the pupil, has also some influence on the more evident perception of the object of sense, which indeed *Tourtual*[*] denies, as, according to him, this is a function peculiar to the *iris*, with which there is no analogy to be found in the sense of hearing. The experiments of *Savart* teach us that it is not powerful tones, as *Bichat* thought, but, on the contrary, weaker sounds, which have the effect of relaxing the membrane; and *Tourtual*, therefore, is not justified in the above assertion, for during a strong tension of the *tympanum*, the perception of tones is more indistinct, on account of the vibration being less extensive; for, as in the *iris*, a certain degree of contraction of the pupil contributes to a clearer perception of objects, so in the membrane of the *tympanum* some degree of tension may be necessary. This opinion is confirmed by the observation of difficulty of hearing occurring after the relaxation of the *tensor tympani*, or after laceration of the tendon of this muscle.

My anatomical investigations having proved the communication of the acoustic nerve with the otic ganglion, enable us not merely to see in what way sounds acting powerfully on the acoustic nerve are imparted to the apparatus for moving the membrane of the *tympanum*, but also lead us no longer to consider the brain as the organ through which that communication takes place, in those cases at least where the influence of sound is not very powerful. According to Tiedemann's valuable discovery,[†] branches from the ophthalmic ganglion communicate with the optic nerve and *retina*; in like manner also a thread communicating with the otic ganglion joins the acoustic nerve, and ramifies doubtless with it in the labyrinth of the ear. As in cases where the irritation from light is not too considerable, by the immediate affection of the ciliary nerves, which spread themselves in the *retina*, and without the mediation of the brain, motions are produced in the *iris* corresponding with the different degrees of light, in consequence of a reaction of the ciliary ganglion on these nerves; so also, from the influence of powerful sounds on the nervous thread ramifying with the acoustic nerve, this affection is communicated to the otic ganglion, from which a reaction takes place on the *tympanum*, and changes equal to the degree of sound ensue. But it seems to me very probable, that when sounds act too powerfully, so that the ear is unpleasantly affected, the reaction may follow through the brain, as it is not merely that we are conscious of an unpleasant sensation, but parts which are under the control of the will come into action; for in such cases we close our eyelids and draw up the under jaw, and thus lessen the area *(lumen)* of the external auditory passage.

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[*] Die Sinue des Menschen. Münster, 1827, p. 66 u. 67.

[†] Zeitschrift für Physiologie, Bd. 1, H. 2.

The next question that arises, after explaining the importance of the communication of the otic ganglion with the acoustic nerve, is, why this communication takes place not immediately, but by means of the facial nerve? I believe the reason of this is, that the facial nerve provides the muscles of the external ear with branches, thus causing its motions to correspond with those of the membrane of the *tympanum*. The muscles of the external ear are, indeed, of slight importance in the human subject, as they generally have no influence on the motion of the cartilage of the ear; but in many MAMMALIA their office is very important. If, therefore, in the human subject there is merely an indication of an arrangement which exists in many MAMMALIA, we must not on this account overlook the consequence of the communication of the otic ganglion with the facial nerve.

As this ganglion communicates also with the third branch of the *trigeminus*, and the glosso-pharyngeal nerve, we must endeavour to point out the office of such junctions.

The position of the otic ganglion, on the internal side of the third branch of the fifth pair, is not merely on account of its proximity to the organ of hearing, but doubtless also on account of physiological reasons. This is clear from the near and intimate relation in which the above-mentioned branch of the fifth pair of the cerebral nerves stands to the external auditory passage and membrane of the *tympanum*, by means of the superficial temporal nerve, to which some filaments from the otic ganglion proceeds, so that, according to the power of the sound received by these parts, and conveyed to the tympanal cavity, impressions can be made on the otic ganglion by means of this nerve, especially as this thread of the third branch of the fifth pair must not be considered as a nerve of motion, but of sensation. This opinion seems to be confirmed also by the observation, that in those animals which have a very moveable and large external ear, the communication of the otic ganglion with the anterior auricular nerve is particularly marked and intimate.

But besides this nerve, there are branches going to the masseter, temporal, and pterygoid muscles, which have a very important function in the organ of hearing, and with which the otic ganglion, as we have before seen, communicates, not merely in receiving many short filaments from the smaller portion of the *trigeminus*, but in so far as the pterygoid nerve penetrates through its substance. The relation of these nerves to the organ of hearing is shown in the effect resulting from the action of the muscles before-mentioned, by which the condyloid process of the under jaw is pressed against the inferior parietal portion of the external ear, thus contracting it a little, and impeding the communication of sound. The action of the masseter muscles, which we so often observe during a powerful degree of sound, must be explained by the communication of the otic ganglion with the *port. min. q. p.* and by this also a too violent irritation of the acoustic nerve is prevented. It is remarkable that in ruminating animals, in which the exterior extremity of the ganglion generally passes into this nerve, the communication with the masseteric nerve is so considerable.

Lastly, with respect to the junction of the otic ganglion with the glosso-pharyngeal nerve, every one will ask, why it communicates with this nerve? Here also the analogy to the eye may assist us. As it is clear from accurate researches, that the long root of the ophthalmic ganglion arises from the *Gasserian* or second intervertebral ganglion of the *cranium*, so here also, besides the short root coming from the *port. min. quint. p.* we find a long one which derives its origin from the first intervertebral ganglion, which must be considered as the ganglion of the glosso-pharyngeal and *vagus* nerves. Now, if we consider that a nerve, arising from the ganglion of the *vagus*, which is in intimate communication with the petrous ganglion, proceeds to the external ear, goes to the *glandulus ceruminosus auris*, and communicates with the posterior auricular nerve of the seventh pair; that, *secondly*, the *nerv. tympanicus* ramifies so multifariously in the cavity of the *tympanum*, no one will be surprised at the specified connection with the petrous ganglion, but will see the evident necessity of such an arrangement.

The first intervertebral ganglion of the *cranium* thus stands in a similar relation to the ear, as the second to the eye; for as the lacrymal nerve, according to my observations, as well as the long root of the ciliary ganglion, derives its origin from the latter, so not merely the long root of the otic ganglion, but also the nerve discovered by me proceeding to the ceruminous glands of the ear, which evidently correspond with the lacrymal gland, arises from the former.

We perceive, from what has been said, that the otic ganglion, through various communications, has the most intimate relation to the organ of hearing, and that its office, with regard to the *tensor tympani*, is of the greatest importance. These points, the results of researches in comparative anatomy, and also the analogy to the ophthalmic ganglion, clearly show that this ganglion must be considered as the central organ for the automatical motions of the membrane of the *tympanum.*

The plate represents the ganglion *oticum sive Arnoldi* of the right side in the human subject. The trunk of the *trigeminus* is raised and thrown back, in order to see its internal surface.

ART. III.—*Notice of Acqua Binelli, with an Account of some Experiments made to elucidate its supposed effects.* By JOHN DAVY, M. D. F. R. S. Assistant-Inspector of Army-Hospitals.

THE water, the subject of this notice, has for several years enjoyed some reputation in Italy, under the name of *Acqua Balsamica Arteriale*, or the more brief one of *Acqua Binelli*;—the one designation derived from the properties attributed to it; —the other, from the individual who invented it.

The properties attributed to it by Binelli, and those who prepare and vend it at present, are not a little marvellous, such as the stopping both internal and external hemorrhagies, and even of the large arteries when cut transversely,—the cleansing and healing of all kinds of wounds,—the renewal of uterine evacuations when suppressed, and the moderating of them when excessive, &c.

My attention was called to this water first by the late Captain, the Honourable Sir Robert Spenser, after a visit which he made to Naples, at a time when the extraordinary virtues attributed to it were in that city a common topic of conversation, and when the proprietors of the secret of its preparation were selling it in large quantities.

The specimen which I examined shortly after, was part of a case of several bottles which he had ordered to be forwarded to him at Malta, for the purpose of having its qualities fairly investigated. * It arrived after the decease of this enlightened officer, and was put into my hands for trial in our military hospitals by Major-General Sir Frederick Ponsonby.

I first examined into its physical and chemical qualities. It proved of the same specific gravity nearly as distilled water. It was neither acid, alkaline, or saline. Its odour was not unlike that of coal-gas not purified, which is lost by boiling. Its taste was rather pungent, not in the slightest degree astringent; in brief, it appeared to be merely water, containing a little volatile oil or naphtha, and was probably prepared by the distillation of water from petroleum, or some kind of tar.

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* The charge for this case was about L. 8. The price of the water at Naples is four Carlini an ounce, or 2s. 8d.

I next made trial of it as a styptic. I scratched the back of the hand with a lancet till the blood flowed. The water applied to the scratch rather increased the bleeding than stopt it. The following morning, in shaving, the razor inflicted a slight cut: the *Acqua Binelli* was again applied, and the result was the same.

These few and simple trials were made in January 1831, just after I received the water; and they of course convinced me that the thing was an imposition on the public, and deserving of no farther investigation.

A short time since my attention was recalled to the subject by a medical practitioner of this island, who had studied at Naples, inviting me with others to witness the effects of a preparation made in imitation of the *Acqua Binelli*, and which he maintained was identical with it in composition and virtues.

The experiment he invited us to witness appeared an unobjectionable one, namely, the partial division of the carotid artery of a goat, the bleeding of which he undertook to stop by means of his fluid. He allowed us to expose the vessel and cut it across; about one-half of the circumference of the artery was divided, and the bleeding was most profuse. He stood ready with compresses moistened with the fluid, which he instantly applied one over the other, and secured them by rolling a bandage about the neck, making moderate pressure on the wounded vessel. A little oozing of blood followed, which soon ceased. He said that in three hours the bandage and compresses might be removed, without any renewal of the hemorrhage. Accordingly, at the end of three hours they were removed; but when the last compress was raised, the bleeding broke out as furiously as at first, and, to save the life of the animal, the artery was secured by ligature. On examining the last compress, a small coagulum of blood was found adhering to it, just the size proper to close the wound in the carotid; thus accounting for the ceasing and renewal of the bleeding.

Reflecting on this result, and considering the chemical nature of the fluid employed to moisten the compresses, which appeared analogous to that of *Binelli*, the conclusion I arrived at was obvious, namely, that, had the compresses used been moistened merely with common water, the effect would have been the same,—the bleeding would have been stopt; and it also appeared very probable, that, had the compresses been allowed to remain undisturbed, there would have been no renewal of the bleeding.

To ascertain the truth of these inferences, the following experiments were made.

On the same day, February 8th, in the presence of several medical officers, I divided partially transversely, the carotid artery of two dogs; one small and feeble, the other of moderate size and strong. In each instance, the bleeding was most profuse till compresses dipt in common water had been applied and secured by a bandage, which, as in the case of the goat already given, completely stopt the hemorrhage.

The small dog, from the proportionally large quantity of blood which it lost, was very feeble immediately, and appeared to be dying; but it presently rallied, and for several days seemed to be doing well. It unexpectedly died on the 15th, seven days after the infliction of the wound. The bandage during this time had not been touched, and no application had been made. Now, on exposing the neck, the wound was found covered with coagulable lymph discharging pus; and, on dissecting out the artery and eighth nerve contiguous to it, a mass of coagulable lymph appeared lying over the wound in the vessel, extending about half an inch above and below it. This mass of coagulable lymph having been carefully removed, and the artery slit open, the vessel was found quite pervious,—not in the least contracted. The wound in the fibro-cellular tissue, or external coat, was closed by a minute portion of dense coagulable lymph. But not so in the middle and inner coat; in these there was a gaping aperture, across which, on minute inspection, two fine threads, apparently of coagulable lymph, (as if the commencement of the healing process), were observable. The cause of the dog's death was not discovered.

The other dog did not appear to suffer from the wound. The bandage and compresses were removed on the 15th February without the occurrence of any bleeding. On the 20th of the same month, the wound in the neck was nearly closed by granulations. The artery was now exposed by incision; and the portion that had been wounded taken out, between two ligatures previously applied. On careful examination of this excised part, it was found free from coagulable lymph, at least there was not the same thickening or tumour from lymph deposited, as in the former case; it was probably absorbed. When the external loose cellular tissue was dissected away, a very minute elevation, about the size of a pin's head, appeared on the site of the wound, the remains of the cicatrix externally. The artery was completely pervious, and not all contracted where it had been wounded. Slit open for internal examination, the wound in the inner coat was marked by a red line interrupted by two white spots; there was no gaping; the edges adhered together, excepting at one point; elsewhere the union was complete. The white spots resembled the natural lining membrane; and had the whole wound been similarly healed, I believe it would have been impossible to have traced it.

The general results of these experiments, (if I may be allowed to speak so of so small a number,) are not without interest in application to surgery. They show how a hemorrhage from the wound of a large artery, which by itself would be speedily fatal, may be easily arrested by moderate compression through the means merely of several folds of linen or cotton moistened with water; and they farther show how, under this moderate compression, the wound in the artery heals, the vessel remains pervious, and without the formation of an aneurism; and how, after a time, only slight traces of the wound are discoverable. Under this moderate pressure the healing of the wounded artery seems to be very analogous to that of a wounded vein, and apparently by means of the same natural process.

Whether similar results could be obtained, were trial made of the same means in the wounds of arteries in the human subject, can only be ascertained positively by judicious experiments. —The probability is that the results would be the same. The analogy is very complete, and some facts well known in surgery accord with it, not to mention the experience of the effects of the *Acqua Binelli*, as certified by men of high respectability.

It was my intention to have given a selection of the certified cases in favour of the *Acqua Binelli*, brought forward in the pamphlet which is furnished with the water. But on reconsidering them, it appeared a superfluous labour, as the results (giving them credit for correctness), however excellent in a curative point of view, are no more than the enlightened surgeon of the present time may readily admit to be owing to water dressings alone, without the aid of pressure,—the majority of instances adduced being examples of gun-shot wounds and contused wounds, from which there was no profuse bleeding, and no necessity, according to the ordinary mode of surgical treatment, for securing wounded vessels.

I have laid stress on the effect of the *pressure* afforded by the wet compresses applied in the experiments related, believing that the virtue of the means consists in the pressure,—of course not in the water, excepting so far as it renders the compresses better fitted for adaptation to the wound to produce the degree of resistance requisite to counteract the heart's impulse in the vessel;—and also better fitted to exclude atmospheric air. I would also lay stress on the *moderate* degree of pressure that is produced in the manner described,—allowing the blood to pass through the canal of the artery, and, as before observed, doing little more than resisting the momentum of the blood in its passage from the moving source.

The importance of this moderate degree of pressure, which has the effect of reducing as much as possible the wounded artery to the condition of a wounded vein, is, if I do not deceive myself, very considerable. When I have pressed with the fingers forcibly on the compresses applied to the wound, expecting at the moment to arrest the bleeding, I have been disappointed. The hemorrhage has continued; and it only ceased when the compresses have been secured, and not tightly, by a roller passed round the neck of the animal. And, farther in illustration, I may remark, that I have been equally disappointed in using graduated compresses, insuring considerable pressure on the wound. This means has failed, when general moderate pressure effected by compresses about two inches long and one wide, succeeded.

On considering the comparative circumstances of these two modes of applying compression, therefore, the difference of result is perhaps what might be expected. The severe pressure can hardly arrest the bleeding except by pressing the sides of the vessel together and closing the canal, the accomplishment of which requires a most nice adaptation, and a force which cannot easily be applied with steadiness except by mechanical means, and in situations affording firm support beneath.

Should the expectation which I have ventured to form of this method of stopping the bleeding of wounded arteries of a large size in man be realized on trial, I need not point out how very useful it may prove in military surgery,—how very available it will be in the field and in battle, especially in great actions, when, however numerous and well appointed the medical staff of an army, the number of wounds requiring attention must always exceed the means of affording adequate surgical relief, according to the plan of treating them at present in use, of suppressing hemorrhage by ligature.

I have said nothing of the boasted efficacy of the *Acqua Binelli* given internally. I trust it is as little necessary to make any comments on it now-a-days, as on the Tar-Water of Bishop Berkeley, so very analogous in nature and reputation. Both the one and the other in some cases may be serviceable; but their principal recommendation appears to be, that in doubtful cases they are innocent.

Malta,
March 25, 1833.

ART. IV.—*Contribution to Statistics of the Army, with some Observations on Military Medical Returns.* By HENRY MARSHALL, Esq. Deputy Inspector General of Army Hospitals.

No. I.

THE object of this paper is twofold—1*st*, to furnish a few statistical facts in regard to the ratio of mortality among troops in different climates or stations; and 2*dly*, to suggest a simple form for arranging the elements of statistical returns of corps, garrisons, or bodies of troops. The utility of statistical facts in regard to the proportion of sick, and the ratio of mortality among certain classes of people, is becoming every day more generally admitted and more highly appreciated. In civil life the requisite data for compiling exact returns of the ratio of sickness and death can seldom be obtained. Much better opportunities for drawing exact conclusions on these topics are afforded by returns of corps or divisions of troops. Military returns are extremely well calculated for deducing satisfactory conclusions respecting the comparative salubrity of different climates. The men of one corps or division of the army are similar in regard to the period of life; their food, exercise, accommodation, and habits, are also similar; so that when there is much greater mortality in one garrison than in another, the circumstance may be chiefly attributed to the influence of climate. Mr Reide was, so far as I know, the first military medical officer who published returns of the sick and mortality of the corps to which he belonged. See his "*View of the Diseases of the Army in Great Britain, America, the West Indies, and on board of King's Ships and Transports, from the beginning of the late war to the present time, together with Monthly and Annual Returns of the Sick in the 29th Regiment, and the 3d Battalion of the 60th Regiment. London,* 1793."

Mr Reide, in a chapter upon military medical returns, says "Dr Millar was the inventor of medical returns. Those for the first year at the Westminster General Dispensary, I made up when I was his pupil from the records, which were accurately kept. As the form of these returns accounts for every case admitted on the books, and the event, I have adopted it." Are we to infer from the above passage, that when Mr Reide entered the service in 1776, medical officers were not required to forward returns to the head of the medical department?

Toward the end of the year 1788, the 3d battalion of the 60th Regiment, of which corps Mr Reide was surgeon, reached the

West Indies. He states in his work, that " on my arrival in the West Indies, I received a letter from the garrison surgeon, containing an extract of an order signed by Sir Clifton Wintringham, Physician General, and Robert Adair, Esq. Surgeon-General of his Majesty's Forces, directing surgeons to send home a return of the sick every half year, with such remarks and observations as they might make on the diseases and method of cure. In obedience to that order, I accordingly sent such returns every half year to the late Mr Adair, Surgeon-General, and since his death to Mr Hunter, who succeeded him in that department."

Mr Reide was not very fortunate, however, in the plan of his medical reports. The returns of the 29th Regiment for about twelve years occupy sixty-one pages of his work; and the returns of the 3d battalion 60th Regiment for about five years, are spread over seventy-one pages. Yet from these materials he draws no definite conclusions; and hence they do not admit of being easily compared with other medical returns.

In the following passage, however, (page 334) he shows that he entertained a very high, and in many respects a just, opinion of the utility of statistical information. " These records" (he says) " afford materials from which intelligent statesmen, naval and military commanders, physicians, philosophers, and mathematicians, may form various calculations in political arithmetic, which may be of use in the deliberations of the cabinet, in the direction of military arrangements, the practice of medicine, operations of finance, commerce, manufactures, agriculture, and in every branch of political economy, and may contribute effectually to eradicate obstinate prejudices concerning the invincible virulence of certain diseases, and the inevitable mortality of particular climates, which have too long screened a destructive practice, and led unwary politicians into dangerous errors, to the ruin of fleets and armies, the disappointment of the best concerted and best conducted military enterprises." He concludes his observations on medical returns with the following passage. " Should my earnest endeavours prove in any degree subservient to these important national purposes, I shall deem it an ample compensation for many years laborious application, in various countries and climates, to the unwearied prosecution of this arduous design." It is greatly to be lamented that the only compensation Mr Reide reaped was a consciousness that he had done his duty, and that he had contributed to the improvement of medical science. The appointment of apothecary to the forces was promised to him; but the promise was never fulfilled. He became in consequence disgusted with the medical department of the army, and retired from it. I have learned that he was afterwards captain and adjutant in a regiment of Irish militia. The neglect Mr Reide met with shows that great industry and acknowledged usefulness may be very inadequately appreciated and rewarded, and his example is by no means a solitary one. Mr Reide had set an excellent example to the officers of the medical department, and his merit ought to have been made generally known and liberally rewarded.

The "annual return of casualties" which was directed to be transmitted from each regiment to the War-Office by Major General Sir Henry Hardinge, when he was secretary at war, will furnish ample materials for compiling extremely valuable returns. Among the many interesting elementary facts connected with the statistics of an army, the following seem to deserve especial consideration.

1. The annual increment of corps.
    - *a.* by recruiting.
    - *b.* by returned deserters.
    - *c.* by transfers.
2. The annual decrement of corps.
    - *a.* by deaths.
    - *b.* by men discharged on account of alleged disabilities.
    - *c.* by purchase of discharges, free discharges, and men discharged at their own request.
    - *d.* by desertion.
    - *f.* by discharges on account of bad conduct.
3. The mean monthly strength of corps.
4. The mean monthly number of sick in a corps.

Returns of this comprehensive nature would afford excellent data for deducing highly interesting and important conclusions. Even when the materials are limited to an account of the mean strength, the mean monthly number of sick, and the number of deaths, they may be so arranged as to afford very interesting results. Returns of sick should be simple in their construction, easily comprehended, and strictly uniform. From correct elements very useful and important general conclusions may be deduced. The utility of returns or statistical tables depends greatly upon their uniformity; for, unless they are uniform, they cannot be easily compared; and a principal use of numerical statements is that of comparison.

No. 9.

Return of the mean strength of the troops employed in Ireland from the 31st December 1796, till the 1st January 1829, (being a period of 32 years,) the proportion of sick, the number of deaths, and the proportion of deaths per cent. of the mean strength.

	Mean Strength.	Proportion of sick per cent.	Number of deaths.	Proportion of deaths per cent. of Mean Strength.
1797,	40907	4.3	674	1.6
1798,	53036	4.8	825*	1.5
1799,	60871	4.6	1165	1.9
1800,	54396*	5.0	1121	2.0
1801,	62009	6.0	1107	1.7
1802,	37008	5.7	455	1.2
1803,	29753	6.3	492	1.6
1804,	53578	6.4	1102	2.0
1805,	51198	5.1	678	1.3
1806,	46652	5.2	760	1.6
1807,	52890	5.3	813	1.5
1808,	53935	5.3	1025	1.9
1809,	40640	4.8	583	1.4
1810,	43248	4.9	590	1.3
1811,	47886	5.2	642	1.3
1812,	44778	4.8	610	1.3
1813,	39685	4.4	439	1.1
1814,	44305	4.1	679	1.5
1815,	35866	4.6	520	1.4
1816,	32382	5.1	528	1.6
1817,	24255	4.5	302	1.2
1818,	21353	5.1	294	1.3
1819,	19110	4.6	201	1.5
1820,	22213	4.8	262	1.1
1821,	19382	5.0	242	1.2
1822,	20598	4.7	260	1.2
1823,	21582	4.9	271	1.2
1824,	21257	4.7	299	1.4
1825,	22050	5.1	346	1.5
1826,	21379	5.8	431	2.0
1827,	20861	6.0	365	1.6
1828,	22426	6.0	371	1.6
Mean of 32 years,	36.921	5.1	576	1.5

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* The men killed in the field, or who died of their wounds, are not included in this number.

Abstract of the monthly returns of the sick of his Majesty's army employed in the Madras Presidency (India) from the 1st January 1808, till the 31st December 1809.

1808.	Strength.	Sick or unfit for duty.	Ratio of sick per cent.	No. of deaths.	Ratio of deaths per cent.
January,	9208	1219	14.3	71	
February,	9150	1339	13.1	56	
March,	8903	1319	14.7	109	
April,	7612	1186	15.5	55	
May, .	7848	1137	14.5	53	
June,	7766	1143	14.7	83	
July, .	7704	1147	14.9	59	
August,	7853	1106	14.	48	
September,	8563	1067	12.4	40	
October,	8843	1088	12.3	42	
November,	8253	966	11.7	40	
December,	8168	1031	12.6	43	
Mean of 12 months,	8322	1145	13.7	699	8.4
1809.					
January,	8126	1112	13.5	41	
February,	8006	915	11.4	47	
March,	8634	999	11.5	86	
April,	8543	967	11.3	83	
May, .	8440	951	11.5	59	
June, .	8396	1082	12.8	47	
July, .	8352	1058	12.6	44	
August,	10152	937	9.2	48	
Sept. .	10099	1051	10.3	61	
October,	10171	1106	11.4	59	
November,	10213	1144	11.2	52	
December,	10221	977	9.5	50	
Mean of 12 Months,	9112	1030	11.3	727	7.9
1808, .	8322	1145	13.7	699	8.4
1809, .	9112	1030	11.3	727	7.9
Mean of 2 years,	8717	1087	12.4	713	8.1

According to the above abstracts, and the conclusions which have been deduced from them, it appears that the mean ratio of sick in hospital during the period specified was 12.4 per cent, and that the mean annual ratio of deaths was 8.1. These are important facts, not only to government but to medical officers. From these abstracts it may also be inferred, that, on an average of stations, there is no very great dissimilarity in the ratio of sick or the ratio of deaths in the different months of the year in the Madras Presidency.

In the following return of the 59th regiment, I have endeavoured to state the annual decrement of the corps by disabilities and deaths, in as few figures as possible.

Return of the mean annual strength of the 59th Regiment, from the 23d April 1806, when it landed at Madras, till the 31st December 1818; together with the numbers that died or were invalided, and the proportions per cent. of the annual decrement by these means.

	Mean Strength.	Numbers invalided.	Ratio per cent. invalid.	Died.	Ratio per cent. died.	Annual loss by deaths and invaliding per cent.
1806,	883			60	6.7	
1807,	1020	25		46	4.5	
1808,	1069	17		33	3.1	
1809,	1099	8		57	5.1	
1810,	1140	19		68	6.	
1811,	968	6		157	16.2	
1812,	966	34		135	14.	
1813,	834	54		69	8.4	
1814,	732	2		99	12.1	
1815,	665	20		45	6.7	
1816,	641	54		36	5 6	
1817,	884	6		74	8.3	
1818,	828	27		24	3.1	
Mean of 13 yrs.	901	21	2.3	69	7.8	10.

When the elementary records of a corps are greatly limited, the following plan may be adopted, by which means the simplicity and uniformity of the conclusions may be preserved.

" The Second Battalion of the Royal Regiment landed in India on the 1st October 1807, being 1075 strong, and embarked at Madras for England on the 3d June 1831. Between these two dates, 2662 men joined the regiment from England, and 252 volunteers from corps in India. During the same period, 2206 men died, and 900 were discharged on account of disabilities."

From these facts I have deduced the following results.

Mean annual strength.	Mean an. No. of deaths.	Ratio per cent. of deaths.	Mean an. No. invalided.	Ratio per cent. invalided.	Tot. ann. decrement by deaths and invaliding.
1067	92	7.6	37	3.1	10.8

Return of the mean annual strength of the garrison of Gibraltar, the number of deaths, and the proportion per cent. of the deaths to the mean strength, from the 21st December 1814, till the 31st December 1831.

		Mean strength.	Deaths.	Ratio per cent. of deaths.
1815,	about	4000	39	.9
1816,		4000	33	.7
1817,		4000	91	2.2
1818,		4000	84	2.1
1819,		3523	45	1.2
1820,		3139	32	1.
1821,		2943	32	1.
1822,		2802	23	.8
1823,		2809	23	.8
1824,		3201	55	1.7
1825,		3547	37	1.
1826,		3627	37	1.
1827,		3396	32	.9
1828,		3309	444	13.4
1829,		3837	27	.7
1830,		3785	47	1.2
1831,		3627	41	1.1
Mean of 17 years,		3267	66	2

During the eight years which preceded the 20th December 1822, the annual ratio of mortality in the garrison of Gibraltar was 1.1 per cent. and the ratio of men invalided 3.3 per cent.

Return of the mean annual strength of the garrison of Malta, the number of deaths, and the ratio per cent. of the deaths from the year 1824 till the year 1831 inclusive.

	Average strength.	Deaths.	Ratio per cent.
1824,	1928	54	2.8
1825,	2036	21	1.
1826,	2610	28	1.
1827,	1776	19	1.
1828,	2667	27	1.

1829,	2291	32	1.3
1830,	2406	41	1.7
1831,	2094	47	2.2
Average of 8 years,	2226	34	1.5

Return of the mean annual strength of the troops employed in the Ionian Islands, the number of deaths, and the proportion per cent. of the deaths from the year 1820 till the year 1832 inclusive.

	Mean strength.	Deaths.	Ratio per cent. of deaths.
1820,	2704	59	2.2
1821,	3139	119	3.4
1822,	3139	86	2.7
1823,	3340	111	3.3
1824,	3517	101	2.9
1825,	3358	69	2.
1826,	3375	67	2.
1827,	3439	94	2.7
1828,	4056	147	3.6
1829,	4056	138	3.4
1830,	4394	118	2.7
1831,	3340	50	1.5
1832,	3244	46	1.4
Mean of 13 years,	3467	93	2.6

General abstract of the preceding Returns.

Stations and corps.	No. years included in the returns.	Mean annual strength.	Mean ratio of sick per cent.	Mean an. number of deaths.	Mean an. ratio of deaths per cent.	Mean an. ratio of men inval. per cent.	Tot. an. loss by death and invaliding.
Ireland,	32	36921	5.1	576	1.5		
Madras,	2	8717	12.4	713	8.1		
Royal Regt.	24	1067		92	7.6	2.3	10.
59th Regt.	13	901		69	7.8	3.1	10.8
Gibraltar,	17	3267		66	2.		
Malta,	8	2226		34	1.5		
Ionian Islands,	13	3467		93	2.6		

Were comprehensive returns of the different divisions of the British army published, and precise results deduced from them similar to the preceding tables for a period of twenty or thirty years, we should thereby be able to appreciate the influence of the climate of particular stations upon the health of troops, and to anticipate to a certain degree the mean ratio of sick, the mean ratio of invalids, and the mean ratio of deaths that would occur among any number of troops which might be employed in each station or colony. The advantages which might result from an intimate knowledge of these facts are so obvious, both for political and scientific purposes, that it would be considered a work of supererogation were I to attempt to enumerate them.

ART. V.—*Observations on the Character and Treatment of Iritis, with Preliminary Remarks on the Anatomical Structure and Physiology of the Iris, necessary to the elucidation of the Phenomena it presents during Inflammation, and certain Pathological Conditions that result.* By CHARLES WARBURTON RIGGS, Esq. Surgeon.

THE ordinary diameter of the iris is about a line, its direction vertical, and its shade of colour presenting endless variety. On its anterior surface are observed two concentric circles, differing in depth of tint in different individuals; the greater ring, or that near the ciliary circumference of the iris, is broader but of lighter colour than that near the pupillary margin. Striated lines are discernible passing towards the pupil; as they approach it they interweave. In some cases its anterior aspect presents a mottled or marbled appearance, from the colouring matter being distributed in points. Whatever its colour is when closely examined it will be found rich and velvety. The necessity of the utmost familiarity with its appearance will be hereafter insisted on. The substance of the iris is described by some anatomists as composed of two laminæ, separable near the greater circumference, but intimately blended towards the pupil, converging and uniting into a membranous zone. Professor Maunoir of Geneva, by means of a powerful lens, distinguished muscular fibres in the iris, which he described as forming two kinds of planes; an external, radiated, broader, and corresponding to the outer coloured ring, dilating the pupil; an inner one, narrower, with concentric fibres, acting as a sphincter. The existence of the membrane of the aqueous humour, which, if present, must cover the front of the iris, is doubtful. The reasoning in support of the non-existence of this membrane is drawn chiefly from the secretion being formed principally in the posterior chamber. The capacity of the anterior exceeds that of the posterior chamber; the former is computed at the depth of a line and half, the latter at one-fourth of a line; according to Mr Guthrie the greater part of the fluid passes from the posterior to the anterior chamber.*

Of the three sets of arterial branches going to the *iris*, those derived from the muscular arteries, the anterior ciliary, require most attention, as increased vascularity of them affords one characteristic diagnostic mark of iritis, at least in an acute form. They pierce the *sclerotica* within about two lines of the *cornea* after running from its posterior aspect, between that tunic and the *conjunctiva*, and after passing through the ciliary ligament, they anastomose with the long and short ciliary filaments.

The nerves distributed to the *iris* proceed chiefly from the lenticular ganglion, a few twigs arising from the nasal. Notwithstanding the statements of some anatomists, it is, I believe, generally admitted, that the proof of the muscularity of the *iris* is established by analogy rather than actual demonstration of muscular fibres. The analogical evidence that goes to confirm the opinion of its muscularity it were tedious to enumerate. One physiological fact, which strongly associates the laws that govern the action of the iris with the muscular system, is its contraction from galvanism. Dr Jacob inserted a needle in the *iris* of a malefactor, which was excited to brisk action by the galvanic aura. This experiment was performed at the College of Surgeons in Dublin, in 1828. Those natural causes that actuate and modify the motions of the *iris* fall more immediately to be noticed. A voluntary power over the *iris* must be admitted. Cases well authenticated have been adduced. Dr Roget's account of the voluntary power he is capable of exercising over the motions of his *irides* must establish it.† I heard a teacher of anatomy relate the instance of a young gentleman who could at pleasure obscure the view of a near object, while the visual application was continued unchanged, without alteration or motion in the globe; this was effected by a dilatation of which the individual was unconscious, but very appreciable to an observer. This fact tends to invalidate Mr Travers's hypothesis of the motions of dilatation being dependent on elasticity. It seems more accordant with a just consideration of the action of dilatation to suppose that it is vital, and produced by radial fibres, whose stimulus is the state of tension into which the antecedent contraction has thrown them.

The causes, then, that may be stated as influencing its contractions are, 1*st*, volition, 2*dly*, the stimulus of light, 3*dly*, the sympathy with the *retina*, 4*thly*, concert with its fellow. The second cause assigned, that from the direct stimulus of light, independently of the *retina*, is founded on the observance of the power remaining in complete *amaurosis*; whilst in morbid dilatation, *mydriasis*, the sensibility of the *retina* continues unimpaired, the *iris* being almost immoveably dilated. I cannot adopt the opinion of Mr Travers, that sympathy of the *iris* and *retina* is ascribable to the connection of the ciliary nerves and retina; and still less the conjecture, that apposition of the lenticular ganglion to the optic nerve, affects the union. Sympathies exist in other parts that cannot depend on a junction of nerves. In the present state of knowledge it is better to rest satisfied with the information afforded by the term *contiguous sympathy*, than to explain physiological phenomena by forced inferences.

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* Lectures on the Operative Surgery of the Eye, p. 460.

† Vide, Travers's Synopsis.

Inflammation of the *iris* may be considered as *simple* or *specific*, as it comes on in a healthy state of the system, or arises during the existence of what are called specific or constitutional diseases. Another division, like that of inflammation in other parts, into acute, subacute, and chronic, must not be omitted. The epithet *subacute* conveys a more accurate idea of the slower forms of this affection. The term *chronic* denotes, in the general acceptation, the condition that remains after the subsidence of active inflammation, or a slow and irregular species of inflammatory action. Cases of *iritis* are not frequent; yet forty years ago the disease had not been recognized, or at least no account of it published. A German author wrote the first treatise on it. In Mr Howard's work on the venereal disease, the affection is noticed, and designated *venereal ophthalmia*.

Notwithstanding the frequency of the disease, and the lengthened notice of it in modern systematic books on the eye, and the able treatise of Mr Lawrence on the subject, practitioners are not, it is feared, sufficiently acquainted with the disease, so as to discriminate the first indications of the affection, when the inflammation can, in almost every case, be arrested. Books on the subject are not accessible to the bulk of practitioners; and my object in drawing up this article, has been to lay before the numerous readers of this Journal a brief treatise on *iritis*, containing the opinions of the most approved writers and teachers, with deductions from a pretty extensive opportunity of observing the affection, and of acquiring the collateral information that the subject naturally embraces.

I have known the physician to an extensive hospital overlook the seat of the inflammation, treating it with ordinary antiphlogistic measures, until the effective means were nearly unavailing. In private practice errors of this kind often occur; and I cannot better convey, or more forcibly impress, the necessity of being able to recognize the earliest marks of *iritis*, and the ignorance and inattention that prevails in detecting the primary stage of the disease, than by reciting the following case.

A young gentleman about thirty, complained of general uneasiness of one eye, pain of the ball, and lacramation. These symptoms were first experienced towards evening, and abated much before morning. The next day about the same hour they recurred with increased severity, the pain extending to the orbit and temple. The medical attendant to the family now saw the person, and found the vascularity so slight as to lead him to consider the attack as one of rheumatism of the sclerotic. Four days elapsed with progressive aggravation, the pain towards evening becoming intolerable, with great intolerance of light. The violence of his sufferings, and not any apprehension of the deprivation of sight, induced the patient to have additional advice. *Iritis* was then detected, barely in time to preserve vision under the most decisive treatment.

The necessity of being able to recognize the complaint or its invasion is too apparent to dwell on. This is the leading difficulty to be encountered. If the disease be ascertained sufficiently soon, the treatment is simple and successful. What symptoms, then, characterize it? On looking at an affected eye, a peculiar arrangement of red vessels is observable. Towards the circumference of the globe they become distinctly visible, running forward in lines without lateral communications; as they approach the *cornea*, a free anastomoses takes place, and a plexus is formed, a little external to the *cornea*, of a pretty deep colour in general. This is a diagnostic mark of importance. The vessels being covered by the *conjunctiva*, exhibit a purplish tinge; and the lustre or clearness of the *cornea* will be diminished. But these signs, of course, vary in intensity. If the inflammation be acute, these marks are very apparent, in cases of an opposite nature, they are nearly imperceptible. When the inflammation is violent and the red zone marked, on close inspection a greyish line will be observable, which Mr Howard has aptly called the ash-coloured zone; " the edge, or circle, he observes, formed by the junction of the *conjunctiva* and *cornea* appears thickened, of an ash-colour, slightly tinted with red." It is most distinct towards the cornea.

These characters, are, I have said, subject to much variation, either from the degree of the inflammatory action, or from inflammation co-existing, or arising in the *conjunctiva* or *sclerotica*, or deeper tissues of the eye. The general appearance will point out in which texture the complication exists, although, when high action is going on, the distinguishing features are lost in the general redness. The pain is often urgent, and in cases where syphilis has given rise to it, the patient's sufferings become aggravated towards evening; the most distressing feelings are caused by the intolerance of light; this is most severe during the first stage of an acute attack, before muddiness of the aqueous humour, and dulness of the *cornea* have veiled the *retina;* it is often as great as in strumous ophthalmia. "The venereal ophthalmia," says Mr Howard, "is most likely to be confounded with that arising from *scrofula*, to which it bears a very strong resemblance."

In very severe cases, there will be diffuse redness; the zone and white line are not discernible; the *cornea* is opaque, with red vessels shooting over its surface; depositions of lymph take place between its *lamina;* and the patient's sufferings are commensurate. Such an attack ends in disorganization. A train of symptoms similar to those now detailed, should lead us to investigate the appearance of the *iris*, however slight these indications, or the person's sufferings may be. It is by examining the appearance and condition of the *iris*, that we can alone judge of the absence or presence of this disease. Impressed with this conviction, I called the attention of the reader to the imperative necessity of acquiring a familiarity with the diversified aspect of the iris. He ought to be conversant also with its contractions—the extent, rapidity, and duration of these under different degrees of light. Without possessing himself of these, a practitioner will be often baffled in forming a decision, and will act from erroneous and detrimental conclusions.

On inspecting the *iris*, its colour if inflamed will be altered; this discoloration will depend on the natural colour, the degree and duration of the inflammation. As the change is produced by deposition of fibrine, an admixture of yellow with its colour in health may be anticipated, with a tinge of red. If the colour approached to that of green, it will become lighter mingled with yellow; if blue it assumes a greenish hue—if dark, it will exhibit a reddish tint. In cases where the tone of the inflammation is high, globules of lymph will be deposited of a yellow or amber-colour, usually three or four in number, and occupying in general the papillary margin; they may, however, form in the ciliary border, or on the surface. There is sometimes seen likewise a detached substance in the lower part of the anterior chamber, of different magnitudes, varying in bulk from a pin's head to that of a small pea, called *hypopion*. The earliest deviation in the motion of the *iris*, is that of sluggishness, unaccompanied by irregularity. This diminution in the brisk action of the *iris* may be partly owing to the injected condition of the part. This tardiness, and even a minor degree of irregularity, was ascribed to a state of turgescence of its vessels by Professor Graham, in a clinical lecture, and the opinion supported with much ingenuity. He conceived that its mobility may be impaired, and contraction rendered irregular from a loaded state of the vessels, before any change in the organization has occurred. Subsequently, it becomes irregular, contracts imperfectly or not at all; the pupillary margin becomes thickened, irregular, contracted, and drawn backwards; at times the aperture of the pupil is dilated, at others contracted; it is in the generality of cases diminished. The pupil may be divided by a band of lymph, a net-work may obstruct the opening, or a complete closure of the pupil may happen. Under any of these conditions, especially the latter, restoration of vision by medical treatment is very ambiguous, and the prognostication ought consequently to be guarded.

An interesting question as to the origin of the affection, and not devoid of importance to a practical inquirer, has received different solutions by different authors,—whether the disease ever exist in a sound state of the system, or is *idiopathic*; or follows or arises from a general morbid state of the body, *specific* or *constitutional*? I cannot assent to the opinion, notwithstanding the high authority that Mr Lawrence's name attaches to it, that *iritis* is never simple or idiopathic. It is seldom so; but the weight of medical testimony is in favour of the possibility of the existence of the uncomplicated form of the complaint. In the summer of last year, a case corroborative of the correctness of this opinion came under my observation.

A country man, æt. 24, of very robust frame, was attacked, after several hours exposure to wet, while his face was exposed to a penetrating wind, by inflammation of the *iris*, ushered in by the usual symptoms, and uncomplicated by inflammatory action in any other texture. It showed the characteristic marks of *iritis* in the most indisputable manner, and although measures were promptly and vigorously used, it ended in adhesion, and slightly permanent attraction of colour. This young man had not, I can attest, been the subject of syphilis, or rheumatism, nor had he any marks of strumous diathesis.

That syphilis, rheumatism, gout, scrofula, and mercurialism predispose in a peculiar degree, and in frequency in the order of their enumeration, to the affection, must, I think, be admitted. That it is a sequence of fever among the poor of Dublin, I have heard observed by a practitioner in that city. It may occur from punctured wound, or after extraction of cataract. The disease is, however, induced by secondary syphilitic action generally, and often co-exists with the syphilitic papular eruption, or the scaly eruption, sore throat, superficial ulcerations on the soft palate of a venereal nature, in cases where mercury was administered ineffectually, or acted deleteriously during its exhibition. Mercury may be the sole exciting cause; in particular where the body has been under the severer influence of the mineral frequently. I have known it attributed to the use of the warm bath during mercurialism.

Having said so much relative to the nature and symptoms of this affection, I shall now detail the treatment. In this as in every other affection, we must be governed by circumstances, adopting means with a due attention to the character, the violence, and duration, of the inflammation, and the consequences that have already taken place; and attending in an especial manner to the state of the patient's health both during and previous to an attack. Observance of this caution is more demanded in this than many other affections, being often the concomitant, or more correctly perhaps, the product of such an unsound and broken up state of body, as to call for the closest circumspection in the choice of measures; so as to control the disease by the least possible exhaustion of strength. The sovereign power of mercury in every case in which its administration is admissible is well known. The first step in the treatment is the free abstraction of blood, if the inflammation be acute, and the strength of the patient do not contraindicate its adoption. The intention should be that of producing a decided impression on the constitution; and the quantity of blood drawn must be proportioned to the accomplishment of this design. Any course of treatment without this preparatory step will be uncertain and injudicious. It lessens the local action, mitigates the general disturbance, and facilitates the curative operation of mercury. An acute attack may be destructive of vision in four or five days; and no time is to be lost in palliating means. The use of mercury is to follow immediately the abstraction of blood; it checks the action in the minute vessels, and prevents the inflammation from ending in adhesion. The sooner its effect is manifest of course the better.

Calomel and opium is in general use. The calomel and opium are to be given every third, fourth, and fifth hour; the calomel in doses of from three to five grains, until its constitutional influence is unequivocal. As soon as the mercurial action is established, the pain and intolerance of light abate, the red vessels disappear, the motion of the *iris* is restored, the absorption of lymph is set up, the clearness of the *cornea* is restored in cases in which it had participated, and the aqueous humour becomes transparent. Whilst this crisis is being brought on, the extract of belladonna is to be smeared over the superciliary region and round the orbit, night and morning. Many other substances answer this end. Henbane is used by some; but the belladonna, either in form of extract round the eye, or in solution to the globe, has superseded every other. It dilates the pupil, and prevents the adhesion of the *iris* to the crystalline capsule; or if adhesions have formed they are elongated. It is supposed also to alleviate the pain, and with this view has been combined with opium; but this benefit is by no means certain. Topical applications are unavailing; local depletion by leeches or cupping may be highly advantageous in the course of the treatment. This treatment is applicable to an acute attack.

In the subacute cases there is not the imperative call for the full effect of bleeding, nor the very rapid introduction of mercury into the system. Leeching or cupping may be substituted for the general bleeding, if debility is apprehended, and the calomel apportioned in smaller doses, and given at longer intervals. In the chronic form of the complaint a month or six weeks is not an unusual period for its duration; when it assumes this moderate and protracted state of action, there is consequently less necessity for the adoption of the vigorous and prompt measures already specified. These, however, are to be followed at the discretion of the practitioner, and may be relied on as bringing about a favourable issue.

Cases will occasionally occur in which this treatment would be injudicious or even hazardous. They are rare, but too frequent to be overlooked. There are individuals who cannot bear mercury in any quantity or form. Where this idiosyncracy is known, or found to exist, mercury must not be given, or its use must be discontinued on the manifestation of any untoward symptoms. The *mercurial rash* may be excited by a few grains of the mineral. If this state of the system were likely to be produced, it would be very inconsiderate to run the risk of calling it into action, and to continue its use on the appearance of this affection would be highly culpable. *Iritis* now and then comes on in conjunction with *syphilis*, where mercury would, if given in efficient doses, be unsafe. The sort of cases to which I allude will be met in the persons of young men, of dissipated habits and broken up constitutions, with a tendency to tubercular deposition in the lungs, or strong evidence of its having already taken place. If mercury be given to check the *iritis*, it will be at the risk of exciting a fatal action in the chest. In those cases where it is accompanied by syphilitic eruptions, the blotches may degenerate into scabs, or phagedenic ulceration may ensue. The spirit of turpentine, as recommended by Mr Carmichael, I have seen used in cases such as I have described with entire success. Given to the extent of one or two drachms three times daily, I have witnessed a perfect cure. An alleviation was generally experienced on the third day of its use, and at the expiration of from twelve to sixteen days all traces of the disease had vanished.

The spirit of turpentine will be found a valuable subsidiary remedy in cases, at least, in which mercury is prohibited.

ART. VI.—*Remarks on the Malignant Cholera as it appeared in Manchester.* By SAMUEL GASKELL, Esq. lately Resident Surgeon at the Swan Street Cholera Hospital.

MALIGNANT cholera first appeared in Manchester in the month of June 1832, and continued to prevail until the close of the year, when it had entirely abated. During this period I had the opportunity of observing and treating upwards of 400 cases in the hospital at which I resided. The following remarks are a brief analysis of notes taken at the bed sides of these patients, and, though deficient in many respects, are not wanting in the strictest accuracy.

During the months of June, July, and the early part of August, the disease made very slow progress, the number of cases averaging about eight daily. On the 9th of August the working classes were allowed a general holiday to celebrate the passing of the Reform Bill; this led to much intoxication and exposure to night air. In a few days after this holiday the number of cases became greatly augmented.*

Throughout the progress of the disease the strongest evidences of the contagious nature of the malady was afforded, both as respects individual cases and its passage from one district of the town to another.

No less than eight nurses at the hospital were attacked, four of whom fell sacrifices to the malady.

It is not a little remarkable that spinners and others employed in the warm rooms of factories enjoyed a degree of exemption above all other classes of operatives.

Although the early symptoms of cholera, as well as the subsequent stages, are in some degree pretty uniform, yet the mode

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* The following is an enumeration of the cases from the 1st to the 23d of August, after which period the number of cases daily diminished.

Aug. 1,	3 cases.	Aug. 9,	8 cases.	Aug. 17,	34 cases.
2,	3	10,	7	18,	31
3,	2	11,	17	19 & 20,	79
4,	4	12 & 13,	34	21,	35
5 & 6,	12	14,	8	22,	43
7,	12	15,	32	23,	45
8,	10	16,	31		

in which it attacks the system may, with great propriety, admit of a division into two classes.

The most frequent mode of attack is by diarrhœa commencing without any marked pain or uneasiness in the abdomen, the evacuations at first being more copious than usual, but unaccompanied with any feeling of indisposition. So little distress, indeed, is experienced that the increase in the quantity of evacuation scarcely attracts the notice of the patient. The calls to stool become gradually more frequent, and the dejections are changed from the natural state to a more fluid consistence, and at length become quite fluid, consisting of a serous liquid containing flaky matter floating in it. This state of the evacuations has been very correctly described as resembling rice-water.

The space of time which elapses from the commencement of the diarrhœa to the period when this change has taken place in the nature of the evacuations, varies very much. In some cases it will occupy a week or more, in others only one or two days. In the generality of cases, the bilious diarrhœa has existed about three or four days at the time when the serous evacuations appear.

The evacuations which succeed the bilious, and immediately precede the rice-watery, have frequently the appearance of light-coloured urine; but this rarely continues more than a few hours, when it is succeeded by the rice-watet evacuations.

It must not be supposed whilst this increased discharge and altered character of excrementitious matter is going on, that no other derangement in the system occurs. It is not my intention in this sketch to detail each symptom in the order of accession, but to take a special view of the course and changes of each symptom individually.

After the continuance of this diarrhœa, during a space more or less determinate, the patient feels a degree of debility, succeeded by loss of appetite and nausea; he endeavours to take his meals as usual, and at length the action of vomiting commences. This is most commonly excited after taking food, especially dinner. The matter first ejected consists of the contents of the stomach; the action continuing, a bilious fluid is next thrown off; this by degrees becomes more watery, and at length assumes an appearance somewhat similar to the serous dejections *per anum*. It differs, however, in several respects. It rarely contains *flocculi*, resembles dirty water, and contains mucus mixed with it, or floating on the surface.

The action of vomiting when once excited becomes incessant; every thing taken into the stomach is immediately rejected with considerable force. Indeed, when no fluids have been taken into the stomach, vomiting of this watery fluid continues, and sometimes proceeds to an enormous extent, so as to cause considerable wonder as to the source whence so great a supply of fluid proceeds.

In a very short time after the commencement of vomiting, the patient feels cramps in the toes, then in the sole of the foot, and afterwards in the calves of the legs, giving much excruciating pain. The duration and return of this symptom varies very much; sometimes the cramps are very transient and often repeated; at others they may be of longer duration, with a greater interval of repose. The first attack of cramp rarely proceeds higher than the calf of the leg; and it frequently happens that one or two attacks are felt in the feet before it arrives at this point. If the cramps continue, they are next felt in the thighs, fingers, and arms. Sometimes one muscle only is affected. Thus I have seen the *sartorius* muscle continue in a state of contraction for some time, whilst the other muscles of the thigh were inactive. The muscles of the chest, back, and abdomen, are also occasionally affected; but this rarely or never occurs, when cholera makes its attack in the mode I am now attempting to describe. Children are rarely affected with cramps, but they very frequently complain of pain in the extremities.

The force and volume of the pulse in cholera is regulated in a great degree by the extent of the evacuations. It is at first weakened and slightly accelerated. As the evacuations continue, it becomes still more weak, often irregular, and sometimes intermitting. When the serous dejections occur, a most decided failure in the strength of the pulse takes place. It becomes extremely small and compressible, and in the perfect collapse is quite imperceptible.

When the pulse fails the voice becomes weak, requiring a considerable effort to articulate. It is then whispering and husky, as if the patient suffered from *laryngitis*. Young patients rarely suffer from alteration in the voice.

Coexistent with failure of the pulse is the affection of the surface. It generally assumes a dusky hue; the countenance has a deadly aspect, the eyes having lost their lustre, sunk in the sockets, and surrounded by a dark areola; the lips are blue, and tongue cold, and of a livid colour. When the progress of the disease has been slow, the surface does not present that dusky or blue appearance; it is more cadaverous and clammy. The integument, especially at the extremities of the fingers, is very much shrivelled.

There is at this time also a great feeling of oppression, accompanied by much jactitation. The head is sometimes violently thrown back, in order to assist the powers of respiration.

This jactitation always tends to lower the pulse, and frequently throws a patient with a distinct pulse into complete collapse. Any exertion made by a patient seems greatly to aggravate the disease. I have known death to ensue in several cases from a resistance made with the nurse when administering medicine. It is not improbable that many writers on cholera have mistaken jactitation for a spasmodic action, as we read in several works, of spasms so violent as to throw the patient about in bed. Now the spasms in cholera consist of a continued muscular contraction, which endures a few seconds or more, and distorts the extremities during its continuance. It is not a rapid and repeated contraction of the muscular fibre, which, of course, would be requisite to produce a convulsive action in the system.

The flow of urine is diminished in the early stages, and generally becomes entirely suspended whilst the vomiting and purging of serous fluid exists.

Of course, the removal of any of these symptoms is to be hailed as a sign of amendment; and when once such a tendency of return to natural action occurs in one part, it is soon followed by a favourable change in other parts of the system.

The second mode in which cholera attacks the system is more sudden and alarming, but it is by no means a frequent form of the disease. The individual has perhaps felt no indisposition, when, after a slight vertigo, he experiences a feeling of great oppression over the whole body, but especially at the precordial region. The respiration becomes quick and laborious; the heart's action is strong, but the pulse is oppressed; the surface livid; and the countenance expressive of great agony. To this state of the system are soon added violent cramps over the whole body, affecting not only the muscles of the extremities, but those of the chest, back, and abdomen, so that the respiratory function is impeded, being rapid and imperfect for a short time, then altogether suspended, when the patient makes violent contortions of the body. The contraction of the abdominal muscles produces considerable agony, and great irregularities, on the surface of the abdomen. *Opisthotonos* and *emprosthotonos* are occasionally seen in this form of cholera. The cramps are sometimes first felt in the abdomen, and pass down the legs, being a progress the converse of the first form. The discoloration of the body is great, but there is not that sunk state of the countenance and coldness of surface which exist when diarrhœa had preceded.

This is a very alarming but manageable form of the complaint, free and copious depletion giving immediate relief. In one instance I opened a vein in each arm, and took away forty-five ounces of blood with great benefit. When the disease, however, is allowed to proceed, vomiting is usually first excited, and is followed by purging, in which the evacuations very soon assume the serous character.

It would be incorrect to say that all cases of cholera which I have observed pursue the precise course laid down in these two forms of the disease, but all are reducible to the one or the other. Many varieties occurred in the course of the epidemic; but of them I shall speak hereafter.

On examination of the bodies of those who died in collapse, few or no appearances were remarked which have not been fully dwelt on in the numerous publications which have lately appeared on this disease. I shall therefore content myself with a brief enumeration of the appearances generally observed. These were great congestion in the head, chest, abdomen, and lower portion of the spinal cord; serous effusion in the ventricles of the brain, and in that of the spinal marrow; ecchymosed spots beneath the serous covering of the solid viscera, and under the neurilema of some nerves, especially the *par vagum*, lingual, and splanchnics; the mucous coat of stomach and intestines mottled, and so far softened as to admit of abrasion by gently passing the edge of the knife along its surface, though this was not uniformly the case; in general the longer the disease had existed the greater was this softening of the mucous coat. Dark gray patches were occasionally observed on the mucous surface of the stomach. On cutting open the larger arteries a more vascular appearance than natural is presented, which arises from a thin membrane lining the inner surface of the vessels. This has been considered by some eminent pathologists, with whom I have had an opportunity of inspecting the bodies of cholera subjects, as an organized membrane thrown out from the inner coat of the artery. I have always been inclined to consider this appearance to be produced by a fibrinous deposit on the inner coat, owing to a partial separation of the constituents of the blood a short time before, or at the time of death, and that the florid appearance is owing to a quantity of the red particles retained in this deposit. I have been led to this conclusion by considering, that in some cases in which this appearance was remarkable, the diseased action had not been in existence sufficiently long to allow the formation and organization of an adventitious membrane. Again, on carefully removing it the inner surface of the artery appears quite smooth and natural; had the membrane been organized, it would have presented a roughened appearance, owing to rupture of the connecting vessels.

On considering the great congestion of the blood in internal parts we can be at no loss to account for the serous evacuations. This tendency to congestion, combined with physical changes in the blood and diminished quantity of this fluid, afford a solution of the failure of the pulse and the consequent phenomena. Cramps of the extremities seem to be caused by congestion in the spinal canal. We find after death that congestion of blood has taken place to a greater extent in those parts of the canal whence the nerves arise. Not only do the morbid appearances support this view, but some countenance of it is derived from the treatment. I have invariably found counter-irritation over the loins to be the most sure means in the alleviation of cramps in the lower extremities. When those have subsided, slight attacks of cramps frequently occur during convalescence from exposure to cold.

The changes produced in the voice in cholera are perhaps less easily explained than the other symptoms. By carefully analysing this phenomenon, we perhaps may arrive at some satisfactory conclusion. It will be remembered that the first change is a weakness in the power of producing sound, requiring a larger quantity of air to pass through the *glottis*, in order to effect a feeble utterance. This proceeds until at length a complete exhaustion of the lungs is required to produce one simple sound. In order to explain this phenomenon, we must take into consideration that there is a considerable quantity of cellular substance contained between the folds and at the base of the *chordæ vocales*. Keeping in mind, also, that cellular structure in every part of the body becomes shrunk during cholera, from absorption of the serous fluid contained in its cells, we shall have little difficulty in explaining the alterations of the voice. In consequence of this sinking of the cellular tissue, the apertures of the *glottis* become distorted and expanded, which state of parts requires a greater quantity of air to pass through, in order to produce an effect equivalent to the natural sound; and the capacity of the lungs for air being greatly diminished, owing to engorgement, they cannot supply the requisite quantity of air. The voice in children is only slightly affected, which arises from the diminished aperture of the glottis. That there is a considerable quantity of sub-mucous cellular tissue adjacent to the *glottis*, is well seen in *œdema* of this organ. If, then, the cellular structure can become so overloaded with serous fluid as to obstruct the passage of air through the *glottis*, the opposite state would surely cause considerable dilatation in this passage, and hence produce the *vox cholerica*.

Having dwelt on the symptoms and appearances found after death from collapse, we may now consider the mode of recovering from this stage. A diminution of the alvine discharges is generally the first symptom of amendment, and if this is accompanied with an improvement in the force of the pulse, it is a very favourable sign. The evacuations may become diminished, from the blood having lost large quantities of its serous parts, and also from diminished action, owing to great oppression and prostration. These two states must be carefully distinguished from the diminished evacuations, accompanied with an improvement in the force of the pulse. The next favourable sign is the appearance of bile in the stools. Most commonly the serous fluid is first tinged yellow or green, which soon becomes more bilious, and at the same time the number of evacuations is diminished. Sometimes, after a diminution of the serous discharges, they become entirely suspended for about twenty hours, and then the patient will pass an evacuation quite bilious and formed. But this is not common, and occurs only in cases where collapse has been of short duration. A secretion of urine generally takes place about the same time with the flow of bile, sometimes earlier; it is at first high-coloured, and of a strong odour, and the patient sometimes experiences *ardor urinæ* on first passing it.

Although the above changes give us a right to make a very favourable prognosis, yet they are not to be looked upon as such positive assurances of recovery as some authors would lead us to suppose. I have frequently seen patients expire within a short time after the appearance of bile in the stools, or after the discharge of urine. Such instances are, however, rare, and when they do occur, arise from a species of relapse, or from the system being almost worn out by the long duration of diseased action, so that it is not able to sustain the return to healthy function.

The stage of reaction or fever varies exceedingly in intensity and in kind. In some the symptoms are so slight as to be scarcely worthy of notice. In others they are strongly marked, and soon lead to a fatal termination. They differ also in kind, one class presenting the general character of *synocha*, the others having some resemblance to *typhus*. Although the symptoms are sufficiently characteristic to admit this division of the febrile stage into two classes, yet the nature of these two forms of fever materially differs from the ordinary *synocha* and *typhus*. The nature of this fever seems to be materially influenced by constitutional causes; its intensity seems to depend on the duration of the previous actions, and the degree to which they had proceeded.

The symptoms during that state of reaction, in which an analogy to *synocha* may be traced, are heat and dryness of skin; tongue red; countenance flushed; pulse accelerated, full, and bounding; *conjunctiva* are in some cases suffused; occasionally vertigo and pain of head are felt. This state is of short duration, soon abates, or is easily removed by treatment.

The typhoid affection is frequently preceded by a continued hiccough, which alternates with vomiting of a greenish fluid; subsequently the matter vomited has a brownish character, and resembles coffee sediment. Vertigo and indistinctness of vision frequently accompany this affection of the stomach; the bowels are at this time sluggish, evacuations, in some natural, but generally rather dark; the pulse is full, soft, and bounding; it gives a peculiar thrill when pressed, so as to diminish the capacity of the artery. In general the *papillæ* of the tongue are elevated; its whole surface, however, is soon coated with a foul, and often bloody, effusion. When this is removed, the surface of the tongue appears clean and florid, the *papillæ* being considerably elevated. *Sordes* on the teeth accompany the foul condition of the tongue.

A degree of stupor gradually supervenes, which in some cases proceeds to perfect coma. The eyes are dull, and the pupils dilated and sluggish. In one case the pupils were alternately contracted and dilated. Contraction of the pupil very rarely occurs; and when it does, it is frequently accompanied with some degree of delirium. A considerable secretion of muco-purulent matter collects on the *conjunctiva*, which in fatal cases coagulates, owing to cessation of motion in the upper eyelid.

When the patient is roused from the state of stupor, the general expression is that of intoxication, with the speech thick and muttering. They generally express themselves as being quite easy. The skin is yellow and transparent; it appears full, as if the cellular tissue was puffed up by effusion underneath. The surface is generally warm and dry, but it often becomes covered with a clammy perspiration. The odour emitted from the body is peculiarly strong and offensive. The respirations during the continuance of these symptoms are slow and easy.

Blood is easily abstracted; it flows freely, has a darker aspect than natural, separates into serum and crassamentum. The crassamentum buffed and cupped. The buffy coat is of considerable thickness, very firm, and almost fibrous; the lower portion of the crassamentum is dark, and easily broken up. In children the pulse is quicker, it has not the peculiar thrill, nor is it full and soft as in adults. There is not the bloody effusion on the tongue, and the odour of the body is less offensive. The stupor is more complete, and comes on very rapidly. In one case complete stupor had supervened twelve hours after the attack, no remedies having been administered.

I regret much that the opportunity of examining the morbid appearances of those dying in this stage was not more frequently afforded. As far as our examinations went, they demonstrated general vascularity of the stomach and intestines, accompanied with softening and abrasion of the mucous membrane. In the stomach the vascularity was greatest at the larger curvatures. In two cases an extremely delicate thin membranous film could be raised from the mucous surface. This alteration in the structure of the mucous surface affords us valuable evidence as to the nature and formation of this membrane. The functions of the mucous surface would lead us *a priori* to suppose that the organization necessary for their performance must be of a complex nature, not consisting of one simple membranous sheet. The solutions of continuity produced by the continued actions in cholera seem to demonstrate the divisibility of the mucous surface of the stomach and intestines into two distinct parts; the deeper one consisting of the minute secreting and absorbent apparatus, which is covered and protected by a thin transparent and extremely delicate film or epidermis.

Since remarking this appearance in the two cases of cholera, I have diligently examined all diseases of the mucous membrane which have come within my reach, hoping to meet with some facts either to disprove or confirm this opinion. Several cases of continued fever, in which the glands of Peyer were diseased, have come under my notice. This disease consists of a thickened and engorged state of these glands, which subsequently proceeds to ulceration. On macerating portions of intestine thus affected, the glandular apparatus became separable from a thin and delicate film which formerly adhered most intimately to it; this is undoubtedly the structure separated by the actions of cholera. That an epidermoid coat should belong to the mucous surface is not at all discordant with its functions. The mucus thrown out in the stomach and intestines is a very insufficient protection of a delicate and important apparatus from the various irritating causes to which it is subject.

In the stomach this epidermoid coat was in some parts separated, in others loosened, but presenting the same uniformly delicate structure. In the *duodenum* and small intestines generally it was loosened, but at the lower portion of the *ileum* it apppeared to have undergone some morbid alterations further than mere separation. Near the valve, and some distance above it, the *ileum* appeared entirely deprived of this structure; higher up it adhered in sloughy patches which were discoloured, being of a brownish colour. Still higher in the canal, this filamentous tissue was continuous, but loosened from the subjacent structure.

The softened state of the mucous membrane described by authors, as found on examination of those who died in the cold stage of cholera, is probably the commencement of this separation. Changes in structure are generally considered as evidences of inflammatory action; but it would be a mistake to suppose that all morbid alterations are the result of inflammation. The vascular appearance of the intestines seems to be owing to a continuance of the congested state of the vessels, and to this congestion and consequent effusion of the constituent parts of the blood may be attributed the separation of the mucous membrane. This separation is somewhat analogous to the elevation of the cuticle on the surface of the body by the effusion of serum underneath it, only that in the one case the serum is effused by an inflammatory action, in the other it is the result of congestion.

In some of the cases the intestines contained a thin film of dark matter, which adhered closely to the mucous surface; in most cases this was perceptible in a greater or less extent, but in one case when the fever had existed some time before death it was remarkably great.

Although this form of fever has been compared to *typhus*, yet it bears strong distinctive characters. But when we consider the numerous states of the system denominated by practitioners, fever of a typhoid type, it is difficult either to form comparisons or to draw distinctions. As a general remark, it may be said that in this fever the heat of the surface is less than in ordinary *typhus*. The pulse is not so quick, is fuller, more bounding, and has a peculiar thrill. Delirium, which is frequently the precursor of stupor in ordinary *typhus*, is rarely observed in cholera.

As the febrile stage has been superadded to cholera since its introduction into Europe, many have been the conjectures respecting its production. It is perhaps easier to determine what is not the cause of it than to assign any very satisfactory reasons for the supervention of such a stage. As many cases of fever occurred when no stimulants or narcotics had been given, the administration of such remedies cannot be considered as causing the febrile stage. It is not likely that the fever is produced by stimulants, as these, combined with other means, I have found to be the best remedies for its cure. It occurred equally often in cases where venesection was employed at the commencement of the attack as when no depletion was used. Again, it cannot be considered as a necessary stage of the disease, as many cases passed from the stage of collapse to convalescence without the intervention of any decided febrile symptoms.

During my attendance upon cholera cases I was struck with several phenomena, which, though not occurring uniformly, were nevertheless so frequent as to leave no doubt that they were the result of actions set up in this disease. Of these the most remarkable, and, as respects our prognosis, the most important, is a marbled appearance of the integuments on the extremities and breasts. It occurs in the collapsed state, and chiefly when this stage has been of some duration. The appearance is doubtless produced by a stagnation or effusion of blood in the cellular tissue; for when the surface is subjected to pressure the discoloration remains unmoved, which would not be the case if the blood was circulating naturally in its vessels. *Women only* are affected with it; and those far advanced in pregnancy are peculiarly liable to it. I have before hinted at the importance of this symptom as regards our prognosis. All the cases which came under my observation, and in which this appearance was decidedly established, terminated fatally. Several cases having this symptom appeared to be proceeding favourably in other respects, yet in the end terminated in death. This fact gives great weight to this symptom, and leads us to investigate the nature of this affection.

Besides the changed state of the blood dependent on the escape of its serous portion through the mucous membrane of the stomach and bowels, a subsequent alteration of its qualities seems to take place; this consists in a tendency to separation between the colouring and fibrinous matter. It would be highly speculative to attempt an explanation of the means by which such a tendency is induced, seeing that various theories exist as to the nature and composition of a particle of this vital fluid; but of the fact that such a tendency does exist, the appearance of blood drawn from the body, as well as that found in it after death, are sufficient evidence. This being granted, how are we to explain the nature of these appearances, and the fatal termination of such cases? We may perhaps be allowed to say, that in such cases there is a greater tendency than common to the separation of the blood into colouring matter and fibrin, and this taking place, a portion of colouring particles are poured into the smaller vessels, where they are detained, partly owing to the oppression of the circulatory powers, but much more by the inability of the vessels of the part to convey the blood so decomposed. Of course the greater tendency which exists to this separation of the fibrin and colouring matter, the greater will be the extent of this obstruction in the minuter vessels; and this obstruction at the extreme parts of the circulatory system being superadded to great oppression at its centre, is amply sufficient to account for the fatality of those cases in which it occurs. The fact of this being more observed in pregnant females is not to be overlooked; for we know that in these there previously exists a tendency to separation between the red particles and fibrin, which being further augmented by the new actions set up, raises it to the extreme.

These considerations may lead us to account for the great fatality of pregnant women attacked by cholera. Of the six cases admitted into the hospital, not one recovered. They do not sink rapidly, but remain a long time in collapse; in one case, the pulse was imperceptible during three days.

Another appearance somewhat analogous to that just described, is a state of the lower extremities somewhat approaching to gangrene. To great coldness is superadded a blueness and lividity, peculiar and differing from the usual dusky hue of cholera. The superficial veins streak the dorsum of the foot; they evidently contain stagnant blood, for all endeavours to press the blood forward are fruitless. If the patient lives sufficiently long, the characters of gangrene become very decided. It cannot be a matter of surprise, after taking into account the foregoing considerations, that such a state of the extreme parts of the body should exist.

Besides these unfavourable appearances on the surface, one of an opposite character is occasionally, though rarely observed, this is an eruption over the surface of the body resembling very closely *urticaria*. It rarely occurs, and only in mild cases, when the patient is recovering;—the relief and benefit experienced by it is very great.

Tinnitus and deafness are occasionally complained of. They are unfavourable symptoms, as they generally precede stupor and coma.

It is not uncommon in cholera to find the pulse intermit; it gradually regains its regularity as the disease abates. It is not easy to determine whether this state of the pulse is entirely functional or produced by organic changes. I am inclined to consider such a state of the circulation to be induced in those systems where a slight organic change exists in the heart, which is not sufficiently great to produce any derangement of the circulation during health, but when the action of cholera is superadded, becomes the cause of the intermittent pulse.

The fluids ejected in cholera are not uniformly of the same character, nor in cases which terminate favourably is there always a gradual change from the serum to the bilious evacuations, without the intervention of some characteristic appearance.

The matter vomited is sometimes green, or brown; and the stools in some cases become bloody, in others they closely resemble weak water gruel. Vomiting of green fluid usually succeeds the serous vomiting. The serum becomes tinged green, which increasing, at length the fluid thrown up is of a bright green hue. It invariably happens that patients with this affection complain of pain or heaviness at the epigastric and right hypochondriac region. It occurs in both mild and severe cases. In the more severe, the green colour is frequently changed for a light brown, and when this occurs it is often the precursor of a typhoid affection. In some cases the evacuations *per* mouth and *anum* are tinged green; but in the majority the alvine evacuations have become of a natural character at the time that vomiting of green matter is going on. This green colour is doubtless owing to the presence of bilious matter in the evacuations, either depraved or altered by admixture with the effused fluids, and thus producing the bright green colour. On considering the circumstances under which this affection occurs, we may regard it as rather an accidental accompaniment, than as one of the stages of cholera. It is uniform in one respect only, viz. in being accompanied with pain or oppression at the *præcordia* or right hypochondriac region. In some cases the evacuations *per anum* throughout the attack have the appearance of thin water gruel; in some cases a similar fluid is vomited; but in most it seems combined with the vomiting of green matter, or the common serous fluid. In a few cases, the evacuations had this character from the commencement of the attack. I have noticed that this appearance of the evacuation occurs in cases where the collapse is not great, although the other symptoms are very severe. The skin is generally moist. There is no uniformity in the termination of these stools. In some they are changed for the natural evacuations; in others they may continue until the patient is worn out; or they are changed for bloody evacuations. Frequent discharges *per anum* of this character continue obstinately unchecked by remedies; and although collapse does not supervene, yet the patient becomes exhausted, and at length worn out by the continuance of these discharges.

The alvine evacuations in cholera frequently become bloody. This only occurs in the later stages of the disease. The appearances presented are, *first*, a slight tinge of red in the serous fluid evacuated, in which the white *flocculi* are seen to float. This tinge gradually becomes deeper in colour. Generally patients complain of pain in the abdomen about the time when these evacuations are commencing. It is accompanied with some tenesmus, which symptom inclined us to suspect the seat of these effusions to be in the large intestines; but *post mortem* examinations demonstrate it to lie higher in the intestinal canal; the small intestines through their whole course being intensely vascular, and containing a fluid closely resembling that passed *per anum*. The mucous membrane is softened and at the lower portion of the *ileum* frequently abraded.

Having thus shown the seat of this action to be in the small intestines, our next inquiry is, how this effusion is produced; and here the question resolves into two heads, whether this effusion of the red particles is merely owing to the continuance of congestion, and thereby effusion of the constituents of the blood, or whether it is mainly attributable to changes which have been produced in the structure of the mucous membrane by continued effusions from its surface. Several considerations lead me to conclude that the softening and abrasion of the mucous coat of the intestines is connected with that state of vessels, which, though caused by the continued effusion of the serous portion of the blood, at length allows the passage of the red particles.

It sometimes happens that a jelly-like fluid is passed, which appears to be composed of mucus and red particles of the blood. In these cases there is less pain of the abdomen, and the patient does not complain of tenesmus, probably from the quantity of mucus acting as a protection to the intestine.

On reviewing the symptoms which accompany these changes in the evacuations, it will be well to keep in mind that each change is accompanied by a particular symptom; the green vomiting by pain or weight at *epigastrium*; gruelly stools by absence of collapse; and bloody stools by pain in *abdomen*.

ART. VII.—*An Extraordinary Dilatation (with hypertrophy?) of all the Thoracic Portion of the Œsophagus causing Dysphagia.* Narrated by ALEXANDER J. HANNAY, M. D. Professor of the Theory and Practice of Physic, Anderson. University of Glasgow, formerly President of the Royal Medical Society of Edinburgh, &c.

I WAS occasionally consulted by the person whose pathological inspection forms the subject of the following memoir. The many speculations I indulged in respecting this case—my repeated yet abortive investigations to fathom its nature, and attempts to accomplish a cure, invest it with an interest and importance in my mind which perhaps it does not deserve. But still, with due submission, I deem it to be worthy of a place in the records of observation, where, after a pretty extensive range of search, I do not find any example exactly if at all parallel.

J. L. æt. 38, rather short of stature, was, however, well-proportioned, muscular, and of active habits. On taking food he experienced a sensation as if it were arrested in the *œsophagus*, a little way above the lower end of the *sternum*, giving rise to the most painful and protracted efforts to swallow. Early in the history of his case, there was merely a sense of uneasiness in the epigastric region created by taking food. This gradually became more distressing, and at a late period, occasionally amounted to an agonizing sense of distension. This suffering was worst after a full meal, and generally subsided *slowly ;* hours used to elapse before it was completely gone. The nature of the food or *ingesta* did not modify the complaint in any observable degree—yet a large quantity always increased the evils of his condition. Immediate relief could be obtained by vomiting, which he was often induced to excite to remove his distress. After intemperate indulgence in spirits, to which he was much addicted for a considerable time previous to his death, the pain on taking food was aggravated, and the vomiting came on spontaneously. Under these circumstances, fluids alone, for example tea in the morning, gave rise to the agonizing feelings above described; though when temperate, he only felt slight uneasiness from taking *ingesta* of this nature. No obstruction was experienced on passing a probang. The sounds of the chest on percussion and auscultation were natural.

The difficulty of swallowing had existed since boyhood; at which time he received a violent blow on the chest inflicted by a club or shinty. It has left no external marks. Since that accident, he has had more or less uneasiness in the epigastric region, and impeded ingestion; but his memory failed him in describing the circumstances which attended the injury, and his account of the case at that time was most meagre and unsatisfactory. It has gradually become more urgent with advancing life, and has always been modified and aggravated by the circumstances before mentioned. His general health did not appear to suffer much from the *dysphagia*, and any changes which his constitution and aspect experienced were rather attributed to his intemperance than to the difficult deglutition. He had of late complained of a constant sense of oppression in the chest, made worse by running up stairs or by violent exertion.

The doubtful and mysterious nature of this case led to a vague and ineffectual practice.

His best remedy was temperance, to a course of which, however, he was but little inclined. In vain did we employ any remedies, except when he abstained from excess and irregularity. When circumstances, which occasionally operated, compelled him to a punctilious observance of temperance, a manifest alleviation of the symptoms was the consequence. He was fully aware of the obscurity of his case, and frequently expressed and enforced his desire that for the sake of science he should be opened and the cause sought out.

One morning about half-past three o'clock he walked home from a supper party, after eating most heartily and drinking as usual to excess. He did not go to bed, but, as was his custom when tipsy, sat down on a chair and fell asleep, with his head in a position calculated to prevent the free return of the blood from the head. His friends have frequently seen him sleeping in this position till his face became livid.

He had fallen forwards on his face and on his knees, as if kneeling, and the wall against which his side fell supported him till found in this attitude.

No one can give any account of his last symptoms, for he was found quite dead between five and six o'clock—say two hours, or two hours and a half, after he had walked up stairs by himself.

Dissection thirty-two hours after death.—Very little change effected on the countenance by death—nor was there any unusual swelling or lividity.

Head.—The scalp was very thick and remarkably adherent. The membranous envelopes of the brain had their vessels distended with blood, but were otherwise free from disease. The sinuses were full of dark grumous blood. Numerous bloody points were seen on the surface of sections of the brain. The *plexus choroides* was tumid, of a very deep purple or port-wine colour, whilst the lining membrane of the ventricles was quite natural in its appearance. This dark purple condition of the *plexus choroides* is not uncommon in persons who have died of apoplexy. It was the only appearance of disease. In a case of apoplexy recorded by Dr Abercrombie, in his work on the Diseases of the Brain and Spinal Chord, (p. 219, 2d ed.) and in the case before us, it was the most remarkable, for there was no effusion either of blood or serum within the head.

The *Chest* sounded naturally on percussion. The lungs were somewhat, though not very remarkably, gorged with blood or other fluids (bloody serum.) There were a very few firm tubercular masses scattered through these organs, but in other respects they and the serous membrane of the chest were particularly healthy.

On turning the right lung to the left side of the chest, in order to cut it out, I uncovered and displayed a long sac, running on, and parallel to the spine, covering that column and projecting over it into the right side of the chest. It was distended by fluid—the distension was increased by pressing the stomach, and pressure on the sac forced back the fluid into the last named viscus. Until I observed this, I imagined that the appearances arose from an aneurism having burst into the posterior *mediastinum*,—a circumstance that well agreed with the sudden death of the individual. But the above communication, and a little more investigation immediately showed that the sac in the *mediastinum* was the *œsophagus* enormously *dilated* and distended with *ingesta.*

The dilatation began immediately on its entrance into the chest. The cervical portion was perfectly natural.—It gradually grew wider till it reached the middle of its course in the *thorax.* There the sac measured, as it laid collapsed on the table and unopened, rather more than three inches across, or when fully distended with fluid, more than six inches in circumference. The thoracic portion alone required above eight gills of water to fill it; and when so filled it looked like the arm of a person fifteen or sixteen years of age.—From the middle of the thoracic portion it gradually diminished in capacity till it reached its appropriate aperture in the diaphragm, where it was of its natural dimension.

I found in the œsophagus a very considerable quantity, about a pint (English) of a light-coloured fluid, something like white or pea-soup, (but approaching to a buff colour), consisting, besides the liquids, of particles of fowl, ham, and bread which appeared to have been in the stomach, and to have undergone a partial digestion.

The parietes of the tube were several times their ordinary thickness,—and comparatively speaking, dense and strong; they had lost almost all trace of muscular texture; the appearance of a section of them reminded me of a piece of sole or thick leather. They had a good deal of blood in them, and seemed very vascular. Its internal or mucous coat was very vascular, arborescent, and red; it was as it were spotted with abrasions of its cuticle, and felt rough and scabrous to the finger. Some parts were smooth, and being less red appeared almost natural There was no obstruction either by tumour external to, or by constriction within the canal. The aperture by which it penetrated the diaphragm was quite patent, of the natural rize, and presented no obstacle, nor could any be detected on minutest examination.

There were no remarkable appearances in any other organs, though carefully examined.

Remarks.—I do not regard the morbid condition of the *œsophagus* as causing this man's death; for a more harmless organic cause of *dysphagia* can scarcely be imagined. Here there was no likelihood of the nourishment of the body failing,—a circumstance which in the usual morbid states preventing ingestion of food, is one of its most distressing symptoms, and often the reason of its proving fatal. Marasmus and a cachectic aspect usually appear in even some of the slighter degrees of this *Dyscinesia*, and certainly in all presenting such difficulty in the act of swallowing as the case before us exhibited. Many of the cases of this nature are dependent on specific morbid actions, as *carcinoma*, or on morbid conditions of the neighbouring parts, as aneurisms, tumours, &c. which injure the general health, or otherwise materially impair the vigour of the body. Many, indeed, perish before the passage is completely obstructed.

In the case before us, the food, though it often excited distressing sensations in its passage, did reach the stomach, and the functions of that organ continuing unimpaired, it sufficiently nourished the body.

Here is a striking peculiarity in the circumstance of the unimpaired vigour and health of the system during nearly thirty years of *dysphagia*, long presenting as great severity of symptoms as any fatal case I ever witnessed;—and may I adduce as another peculiarity, the fact that a probang passed into the stomach as freely as possible, even when his impeded deglutition was most distressing?—a circumstance for which the *post mortem* inspection fully accounted. This pathological fact shows what is, however well established by other observations, the important part performed by the *æsophagus* in deglutition. We are not then to attribute death to *dysphagia*, or the morbid condition of the *æsophagus*.

Nor do I incline to regard the latter in the light of a cause of the apoplexy, approaching to, if not actually the very form called by Dr Abercrombie simple apoplexy, to which I ascribe this man's death. It must be admitted that apoplectic and convulsive affections have not unfrequently assailed persons who have had tumours in the course of the large vessels in the chest and *abdomen*, which can in many cases be only explained on the principle of mechanical obstruction,—and it may be urged that if even pressure on the *aorta* caused a determination of the current of the circulation to the head, by obstructing its course downwards, this was most likely to operate here,—for the tumour was, from the quantity of *ingesta*, enormous in size. It was in close contact with the *aorta*, and, by being contained within a firm unyielding sheath common to both, would confine and direct the pressure with more effect on the large blood-vessels.

I have, however, a strong suspicion that the distorted neck produced by the position into which he usually threw or laid his head when intoxicated, may sufficiently account for the accumulation of the blood on the brain. In his narcotic slumbers he would lie insensible to the uneasiness which this awkward position occasions, whilst the blood which produced the fatal pressure was accumulating. And the attitude into which he fell, (on his knees with his face on the ground), would still favour the determination to the head, as long as there was cardiac and vascular action to propel the blood.

The appearances in the *œsophagus* impressed me with the idea of inflammatory action having been the process by which this morbid change had been accomplished in that organ. The highly vascular, red, and swollen state of the walls or layers of which the tube was formed, were in accordance with this view. The aggravation of the symptoms by a course of life, or practices calculated to increase inflammatory disease, admits of a similar solution. The irritated and abraded surface pronounced inflammation to be in operation in that texture. The painful sensations denoted increased sensibility, and the existence of inflammatory disease in the part. The increased thickness or hypertrophy of the walls of the tube likewise denoted increased action, and the total subversion of its natural structure; and the substitution of one of a new character accorded well with the phenomena of chronic inflammation in many other textures, —a process which Mr Abernethy quaintly, and not inaptly, defined to be the destroyer of old or original textures, and the builder of new ones in their stead.

Repeated attacks of inflammation of the *œsophagus* had probably destroyed its muscular structure and its contractile power. Swallowing was impaired; the food was detained and accumulated; and the distension by the *ingesta* had by degrees mechanically dilated the canal.

(In the Med. Obs. and Inq. Vol. iii. p. 85,) there is on record a case in which the *pharynx* was partially dilated by a mechanical cause, accompanied by obstinate and fatal *dysphagia*. A cherry-stone accidentally lodged in a fold of the *pharynx*, of a man somewhat advanced in years. It remained three days, exciting much pain on swallowing, and was ejected by a violent fit of coughing. The painful sensations in the part soon subsided, and the accident had well nigh been forgotten, when about a year thereafter, portions of the patient's food began to be thrown up into the mouth, having undergone no change, and without any sickness. At first the aliment remained down for some time, and the quantity returned was but small. Gradually the quantity increased, and the time became shorter. At length the regurgitation took place immediately on swallowing, particularly fluids, and occasioned a sense of urgent strangulation. Complete obstruction to the passage finally ensued; no nourishment could be taken; no instrument could be passed; and the patient died in thirteen days, during which time nutritious fluids were diligently injected *per anum.*

Dissection showed that the *pharynx* had become sacculated, —that the sac or pouch, projecting from its posterior aspect, passed *down* between the *œsophagus* and the *vertebræ,* and pressed this tube so strongly against the *larynx* and *trachea,* as to render it impervious. Its magnitude was increased by the distension of food or drink taken into it, and the cause of the difficulty of swallowing thus clearly explained. The probable conjecture is, that the cherry-stone first distended the *pharynx,* and that lodgement of food had gradually increased the partial distension, and augmented its capacity. The weight of the sac and of its contents dragged the mouth of the sac into that position most favourable to the interception of any article passing downwards, and presenting a ready admission to the instrument of the surgeon seeking the natural passage; which was by the stretching or dragging, drawn out of the straight course. I notice this case not only from its curious character, but as illustrating the view I take of the dilatation in my case having been in part at least induced mechanically. The *œsophagus* having lost its muscular power, lost also its power of contraction; the food was consequently retarded and accumulated in the canal, causing the distension to which its sides had yielded; otherwise there is no analogy between the cases. The dilatation was merely partial in the case I abridge from the Medical Observations and Inquiries. In that I record it was universal along the course of the tube, from the clavicle to its passage through the diaphragm. The *œsophagus* in the former case was little if at all altered, except in the situation of the sac, by any morbid condition of its texture. In my case it was *hypertrophied* to a very remarkable degree, and the *mechanism* productive of the difficulty of deglutition must have been very different in the two instances.

Morgagni, (Epist. 28, p. 18,) enumerates dilatation of the *œsophagus* amongst the morbid states of that organ giving rise to *dysphagia.*

He does not appear to have met an instance of this pathological state, but refers to one recorded by Joannes Grashuis, which appears to be analogous to the case produced by the cherry-stone. "Nempe œsophagi circa medium thoracis morbosam in saccum lateralem dilatationem, aquâ subinde variantia symptomata quæ nunquam sine dissectione intelligi potuissent." (Act. N. C. T. C. Obs. 73.) This is only a partial dilatation, and no mention is made of the condition of the structure of the *œsophagus.*

The *œsophagus* is capable of great elongation also by a stretching power, as a case narrated by Dr White of Manchester, by the dragging of a *prolapsus uteri*, the *æsophagus* being greatly lengthened, allowed the stomach to descend into the umbilical region.—Med. Obs. and Inq. Vol. iii. p. 3.

The case which approximates most closely in some particulars, though not by any means in all, is one given by Portal. (Anatom. Medicale, Tome v. p. 204.) The *æsophagus* had become thickened in its *parietes*, and *greater in capacity than the stomach.* But there was a very obvious cause. The orifice of the *cardia* was contracted to such a degree as scarcely to admit a large writing pen; its circumference was swollen, hardened, and unequally embossed, *(bosselé.)* M. Portal had no account of, or, what is to us nearly the same thing, he has not favoured us with the symptoms during life,—a circumstance which materially diminishes the interest of his observation.

ART. VIII.—*Case of Ruptured Uterus during Parturition, followed by Internal Abscess and eventual Recovery, so as to bring forth another full-grown Child fifteen months afterwards.* By JOHN DUNN, Esq. Scarborough.

THE formidable nature and unusual occurrence of cases of ruptured *uterus* induce me to present you with the details of one which happened in the course of our practice at Scarborough.

Mrs Stonehouse, æt. 37, the wife of a bread-baker, of pale complexion, and mother of seven children, was taken in labour with the eighth child at three o'clock A. M. April 15, 1829. With the exception of two tedious labours, the others had been natural. On the 16th of November 1828, she had a fall on her hips from a chair that was suddenly taken away from under her; swelling of the *labia* followed, which demanded bleeding; but, before much was removed she fainted. From this period she was in tolerable health till her accouchement. Her labour-pains went on strongly till half-past five A. M. when they were suspended until eleven o'clock. My colleague, Mr Travis, was sent for about twelve, and finding the pains severe and almost unremitting, and the *os uteri* dilating with obliquity, the lower margin of which seeming to be the thickest, he thought proper to remain with her. About three o'clock, the *os uteri* being fully dilated, and the head presenting on the brim of the *pelvis*, Mr Travis ruptured the membranes. There was not much discharge of water, but the pain continued severe; and in one very strong attack, which seemed most agonizing just below the navel, and when no examination was making by the accoucheur, she suddenly exclaimed, "Oh dear, Sir, something has burst in my inside." Her countenance fell, the pulse became imperceptible, and the pains went away.

Mr Travis instantly sent for me, stated his apprehensions that the *uterus* had ruptured, and finding no time to be lost, I immediately proceeded to examination. The external parts being completely relaxed, I easily introduced my hand beyond the child's head, which rested upon the brim of the *pelvis.* As no contraction of the *uterus* followed, and as I found that I could bring down the feet and turn, without any difficulty on my side or much pain to the patient, I accordingly performed it. The *parietes* of the abdomen were so thin, that the *vertebræ* of the child could be easily traced externally, but it had not escaped into the *abdomen*; and I could feel in a similar manner my own fingers when introduced into the *uterus.* After the delivery of the shoulders and part of the neck, it became so exceedingly difficult to bring the head down into the *pelvis* from the projection of the *sacrum,* that I was obliged to use the vectis, and being totally unassisted by any contraction of the *uterus,* much greater effort was required to deliver than I have ordinarily experienced.

The labour was, however, accomplished without perforation, or indeed any injury to the surface of the child, which was breathless and could not be resuscitated. On introducing my arm for the *placenta,* I felt an immense fibrous mass, with broad membranous attachments, which was evidently the transverse edge of the ruptured *uterus* and the *ligamenta lata.* The *vertebræ* could be easily traced through this large aperture with my fingers, and on reaching very high up I felt on the left side a smooth oval body, which we think must have been the kidney. —After I had removed the placental mass, which was entire, my opinions were confirmed by the manual examination of my partner, who, on introducing his arm, immediately felt the same oval body. We performed this with the greatest delicacy and expedition; for, however anxious we might be to ascertain the state of the parts, we considered the moment that labour was accomplished, and no intestine found strangulated, manual examination should cease. Our patient's pulse was very frequent, and she vomited some dark coloured matter. We gave her a draught of *Tr. Opii. gtt. L.* which she rejected. On visiting her an hour after, her pulse was 150 and small, stomach very irritable, discharge trifling, and she complained of much soreness about the part, that, as she expressed herself, "had given way." An opium pill was prescribed. At 10 P. M. a small quantity of urine was drawn away by the catheter.

16th. Never slept since the labour, but on the whole better; countenance improved; tea or coffee have both been rejected;

and a dose of the effervescent mixtures produced a violent pain in the body; the urine had come away naturally. During the day she frequently vomited bilious matter, the stomach continuing very irritable, but the pain not severe. An opiate was given at bed-time.

17th. As the bowels required relief, a common injection was prepared with castor oil; which not answering, she took *gr.* v. of the compound colocynth pill, which produced easy and agreeable purging. Still no rest at night. Has taken a little chicken broth.

18th. Pulse continues quick; hands dry; tongue but little coated; slight tenderness on pressure of the abdomen. Ordered common saline mixture, which produced a gentle *diaphoresis*. Opiates were discontinued, as she rested better.

19th. Her bowels being griped, her motions dark-coloured, and her urine very turbid, a pill was prescribed of *Pil. Hydrarg. gr.* iij. *Pulv. Opii. gr.* j. *h. s. s.*

20th. Seemed much better, till about half-past 4 P. M., when she was seized with acute pain of the body, great breathlessness, pulse so rapid as to be almost countless. Ordered *gr.* ij. of opium. At 6 P. M. much easier, but tenderness was manifested in the *abdomen* on pressure. Fomentations were used, and leeches kept in readiness in case the pain should return in the night. Repeat the blue pill and opium at bed-time.

21st. Had not rested much during the night, but her expression of countenance was better; pain much easier; pulse still weak and frequent. Ordered to subsist on cold milk and water, which seems to agree with her, and she says since she took it, the *lochia* have increased. Her breasts have never filled, but have been flabby throughout. This afternoon a quart or two of dark green bilious fluid was vomited up; but on my evening visit I found her better than I had yet seen her, and she has passed a natural evacuation.

22d. Continues better, and had another evacuation. On the evening visit her pulse had become again very quick, accompanied with that hurried respiration or breathlessness described by Dr Hamilton. A diffused pain extended over the *abdomen* and chest, which was more particularly felt about the *epigastrium*, and a considerable degree of heat of the surface. On close examination as to diet, it was found she had been taking mutton and milk in the morning, and had (unknown to us before) partaken of some sausages previously to the former attack.

℞ *Opii p. gr.* iss. *Pil. Hydrarg. gr.* iij. *Pulv. digitalis gr.* j. *Cons. q. s. f. Pil. q. p. m. s.*

An hour after I found her better. Ordered fifteen leeches to the body.

23d. The leech wounds had bled freely; she has been better during the night; her pain diminished, but her pulse was quick, and her breathing still called the shoulders into considerable action. The tongue was marked with red streaks and patches. On the evening visit ordered *Ext. Coloc. C. gr.* v. in consequence of her not having had a motion.

24th. A great deal better; had very natural and copious evacuations. Diet broth and an egg.

25th. Tongue quite clean; pain gone; *abdomen*, although never tense, now very soft. She altogether feels so much improved as to wish to sit up. Her discharge of *lochia* more copious and natural.

26th. Continues recovering; is free from pain; countenance good; pulse less frequent, but still above 100; breathing soon agitated by conversation; is very anxious to get up, as she feels pain in her head from the reclined posture. Desired her to sit up in bed.

27th. Altogether better, but headach troublesome, which she attributes to confinement. *Lochia* rather offensive. Ordered to sit in a chair an hour, and to take *gtt.* xv. of the diluted sulphuric acid in infusion of orange peel *ter quotidie.*

30th. Going on very well till to-day. At 4 P. M. she was again seized with pain in the body, which returned at intervals like spasms, and the pulse was very frequent. Her tongue was clean, the bowels open, and could bear pressure; but they were distended with *flatus*. There had been no impropriety in diet.

℞ *Opii. p. gr.* ij. *Ol. Anisi, gtt.* j. *f. Pil. q. p. m. sd.*

At six the pain was somewhat mitigated, but it returned occasionally in severe paroxysms. She could bear pressure pretty well. The pill was repeated and fifteen leeches applied in the night to the body.

May 1st. The pain was now distinctly felt in the hypogastric region; and as no water had passed since yesterday at 11 A. M., a catheter was introduced, and a pint and a-half of urine removed. Pulse still very weak and quick. Ordered two eggs for dinner and a little ale, for which she had long expressed a great desire. She felt weaker when placed on the sofa than she did before, and occasionally the stomach rejected its contents. At eight in the evening had very little pain; the skin was hot; tongue glazed; pulse quick, and breathing easily agitated.

2d. Had a good night and felt quite recovered. To take only broth and eggs.

3d. Complains of what she calls the piles; passes mucus by the rectum with straining. She says her bowels are open; but we cannot succeed in getting an obstinate old nurse to preserve the motions for examination. The pulse is much less frequent, and the patient appears to be doing well; but as a lodgement of *scybala* is suspected from the symptoms she complains of, she was desired to take *Ol. Ricini* ℥*ss.* in peppermint water. On my visit at half-past four, I learned that she had passed a quantity of natural-coloured but offensive smelling *fæces*, of a consistent form, although not indurated. She felt at the same time as if something had given way in her body, and very acute pain supervened. The body was fomented, and the anodyne pill repeated. The pulse had resumed its frequent fluttering character. Her dinner, I ascertained, had been a small piece of roasted veal. Till the 6th she seemed going on pretty well, except a few interruptions from pain requiring another pill, but to-day sickness and purging came on without pain. To sooth the stomach, the effervescing mixtures were ordered, and as her purging had not abated in the evening, a grain of opium was given.

7th. Gradually improving, but complains of great soreness of the mouth, which is ordered to be gargled with borax.

8th. Mouth covered with *aphthæ*, for which a gargle was prescribed of *Decoct. Quercus*, *Acid. Muriat.* and *Tinct. Myrrha.* Port wine was allowed, from her inability to chew ordinary food, and from the great debility under which she seemed to labour.

10th. Had been able to take some animal food, and a little wine and porter. The pulse was much less frequent; and although the mouth was still very troublesome, she was altogether improving. A dose of castor-oil was given to clear her bowels.

11th. Mouth much the same. To gargle with *Infus. Ros.* and *Alum.*

12th. I was called up at 6 A. M. in consequence of her complaining of almost continually passing liquid motions. She was without pain, and her tongue and mouth were very sore. The discharge seemed of a muco-purulent nature, not at all feculent, and proved, after diligent examination, to proceed from the *vagina* or *uterus*. On our visit at two, the discharge had continued, and was very offensive, of the same muco-purulent character, and evidently the result of some internal abscess. The parts were injected with warm water, and afterwards with half a pint of warm gruel twice a-day. Her system ordered to be well nourished.

℞ *Quin. Sulph. gr.* vi.; *Acid. Sulph. D. M.* vi.; *Aq. Puræ* ℥iv.
M. Sumt. Part ⅓ *ter die.*

℞ *Pulv. Opii. gr.* i. *Cons. q. s. f. Pil. l. h. s. s.*

Her mouth, fauces, and throat continued very sore, and her pulse frequent.

13th. Had an easy night; the discharge still continues severe. On the evening visit, I found she had taken a good deal of support, consisting alternately of eggs, milk, wine, and porter. The medicines were repeated.

14th. Had a good night; pulse not so frequent, nor discharge so copious.

In a few days she was taken out in a gig, and required to be as much in the air as possible, by the bracing effects of which she rapidly recovered, and has since enjoyed uninterrupted good health, and been as useful as ever to her family.

In the summer of 1830, Mrs Stonehouse was again with child, and requested me to attend her. As the circumstances of her case had been so formidable before, I requested that my partner might be in readiness to attend with me in case of any unpleasant symptom. This was fortunately unnecessary. I was called to her in the night of the 17th July, and found her going on very well. I slept in the house until my assistance was required. In a few hours time I was called up, and found the child advancing regularly with a breech presentation. I of course did not interfere, as all went on well; but the contractions of the *uterus* were not sufficiently active between the birth of the shoulders and head to enable me to save the life of the child. It was, however, a fine boy, and had evidently died during the strangulation of the *funis* by the compression from the head. She very rapidly recovered, and I heard no more from her till December 6, when she had a violent hemorrhage, and parted with a substance resembling a false conception. She is again quite well.

Oct. 27, 1831. I am again desired to be in readiness to attend the same patient, who is just now at the full period of her pregnancy. The result I shall communicate to you.

A few days after, Mrs S. was delivered of a full-grown living child, which is now, February 9th 1833, alive.

ART. IX.—*Notice relative to the* Pigmentum Nigrum *of the Eye.* By THOMAS WHARTON JONES, Esq. Surgeon.

THE *Pigmentum Nigrum* of the eye is that dark-coloured matter which is found on the posterior surface of the *iris*, on the ciliary processes, and on the inner surface of the choroid.

In these different places it does not present the same characters, having on the inner surface of the choroid the appearance of a thin and uniform layer, whilst behind the *iris* and on the ciliary processes, it occurs in greater quantity, particularly in the eyes of the horse, ox, &c. in which it is so loosely contained in the cellular tissue which supports it, that when the eye is examined under water, it readily diffuses itself in that fluid.

As the posterior surface of the *iris*, and the anterior extremities of the ciliary processes are in contact with the aqueous humour, the pigment might be at first supposed liable to mingle itself with that fluid, but this is prevented by a very delicate membrane, which is found lying over the pigment on the posterior surface of the *iris*, enveloping the free extremities of the ciliary processes, and from thence reflected to the circumference of the capsule of the lens, and probably continued over its anterior surface. With the minutest dissection and microscopical examination, I have not been able to trace this membrane farther than the pupillary margin of the *iris*, where I am inclined to think it terminates—an opinion, I am aware, contrary to that generally received.

In 1790, Carlo Mondini of Bologna published, in the *Commentationes Bononienses*, microscopical observations on the *pigmentum nigrum* of the eye, which showed that it is not merely a mucus or varnish, as is generally believed, but a real membrane, formed, according to him, of innumerable globules, by the union of which an excessively delicate net-work is composed.

Michele Mondini, son of the preceding, published in 1818, in the *Opuscoli Scientifici dell' Universita di Bologna*, additional observations on the black pigment of the eye, to which I shall have occasion to allude as I proceed. But before entering on the subject matter of this memoir, I deem it necessary to make some preliminary observations, in order to correct certain false notions, which are very prevalent, with regard to the parts situate between the retina and choroid. Rudolphi (Grundriss der Physiologie, Zweiter Band,) acknowledges the confusion which exists on this subject.

In speaking of the pigment, Haller, (Elementa Physiologiæ, Vol. v. p. 383,) says, " ut magnas maculas nigras sæpe retinæ tunicæ adhærentes viderim in homine, ave, quadrupede. Eæ maculæ in pisce in membranæ speciem confluunt totamque retinam tegunt."

This expression, which evidently refers to small pieces of the membrane of the pigment, has been made use of by some to detract from the originality of the discovery of Dr Jacob of Dublin, who, in a paper in the Philosophical Transactions for 1819, entitled " An Account of a Membrane of the Eye, now first described," after speaking of the vascular and nervous layers of the *retina*, says, " exclusively of the two layers here noticed, the *retina* is found to be covered on its external surface by a delicate transparent membrane, united to it by cellular substance and vessels. If the *sclerotica* be removed, and the choroid membrane carefully torn and everted, small portions of the structure here alluded to can be detached, or a globule of air, or even of quicksilver, may be insinuated beneath it, by which means it is raised, and can be seen distinctly if held towards the light."

This membrane, from its extreme tenuity, is very apt to be overlooked, unless carefully examined under water, when it appears distinctly but almost like a film. Hence many, not having been able to make it out, still talk of and describe the membrane of the pigment as that discovered by Dr Jacob.

This error has, in no instance I am aware of, been carried to a greater extent, than in a paper published in the Transactions of the Royal Society of Edinburgh for 1826, entitled "Inquiry into the Structure and probable Functions of the Capsules forming the Canal of Petit, and of the *Marsupium Nigrum*, or the peculiar Vascular Tissue traversing the Vitreous Humour in the Eyes of Birds, Reptiles, and Fishes. By Robert Knox, M. D. F. R. S. E. &c.—Read March 15th 1824." In this essay, at page 249, the author, after speaking of the membrane of the pigment as the membrane of Jacob, goes on to say, "in the meantime I shall take the liberty of stating a few observations I have made relative to it which seem hitherto to have escaped notice."

"The membrane of Jacob is generally of a brownish colour, and sufficiently opaque to arrest the rays of light, supposing them to have passed through the transparent *retina*; hence we perceive that a part of the functions heretofore assigned by physiologists to the *choroid* must belong to the *membrane of Jacob*. In those animals in whose eyes there exists a *tapetum*, the membrane of Jacob is not absent, as I supposed, but has the same degree of transparency as the *retina*. Lastly, in most animals it is of a deeper colour than in man. If to these we add the fact, that it does *not possess any blood-vessels*, and that the colouring matter is absent in albino animals, most comparative anatomists will agree with me in thinking, that in the membrane of Jacob we may perceive a structure, *the product of organization, itself inorganic and quite analogous to the coloured portion of the rete mucosum of the skin.*"

The preceding observations, if they refer to anything, refer to the membrane of the pigment, and not to that described by Dr Jacob, which the author, when he wrote them, had evidently never seen.

Having endeavoured to show that the membrane of Jacob must not be confounded with that in which the pigment is deposited, I proceed to describe the structure of the latter, as developed by the microscope, and to explain my ideas regarding its continuity with the tissue which contains the pigment of the ciliary processes and *iris*. But before doing this it will be proper to give the results of Mondini's investigations.*

According to him, "if a portion of the membrane composing the pigment be examined with the microscope, it appears composed of small oblong bodies, analogous to globules, which are rendered more or less opaque by the presence of a multitude of small black points, and are more transparent towards the bottom of the eye than on the sides, and still less on the ciliary processes; they are joined together by a very delicate cellular tissue. If a more powerful lens is employed, it is distinctly perceived that each globule is formed of black points, more numerous at its circumferance than at the centre. On the posterior surface of the *iris* they are superposed, one above the other, so as to form two layers,—hence the deeper tint of the black colour in this part.

"This *membranula* has the same structure in the other *Mammifera*, only the globules are smaller in the *Carnivora* and *Rodentia*. The globules are very white in the young of certain species, and become yellow with age, in the part called the *tapetum*, which produces the azure or greenish appearance of the bottom of the eye in these animals."

I now proceed to describe what I have myself observed.

When a fresh eye is laid open, and the humours, *retina* and membrane of Jacob removed, the inner surface of the choroid is found covered by a dark-coloured matter, which may be detached in small pieces. This matter is of a brown colour in the human eye; and in that of the horse, ox, sheep, &c. inclining to black, except over the *tapetum*, where it is almost transparent.

This is what is commonly called the *pigmentum nigrum*. But, according to my observations, it is a continuous and curiously organized membrane—*the seat of the pigment, but not the pigment itself*, which I shall therefore call the *membrane of the pigment*.

In the human eye, with the exception of its being a little lighter in tint around the entrance of the optic nerve, the membrane of the pigment is of a uniform colour, as far as the termination of the nervous part of the *retina*, that is about two lines behind the roots of the ciliary processes; here it becomes of a darker tint inclining to black.

In those animals in which there is a *tapetum*, the membrane is not of a uniform tint, but in proportion as the colour of the

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* Not having been able to procure the *Opuscoli Scientifichi dell' Universita di Bologna*, I quote from an abstract of Mondini's paper, in the fifth volume of the *Archives Generales de Medecine*.

tapetum increases in intensity, the membrane becomes lighter, and almost transparent, so that the colour of the *tapetum* appearing through it, many have supposed that it did not extend over that structure. Haller (*Elementa Physiologiæ*, Vol. v. p. 383.) says, "In animalibus quadrupedibus ab ea parte abest, in qua tapetum illud lucidum conspicitur."

And Mondini, as is shown in the extract I have made from his memoir, appears to ascribe the production of the *tapetum* to an alteration in the state of the membrane of the pigment induced by age.

Having shown, that what is commonly called the *pigmentum nigrum* is a distinct membrane, the seat of the colouring matter, but not that matter itself, which may or may not be present, I come to the description of the peculiar structure, which I have discovered it to possess.

If a portion of this membrane be examined by the aid of the microscope, it is seen to consist of very minute plates, of an hexagonal form, accurately joined together by their edges, in which plates are deposited numerous black particles, which are to be considered as properly constituting the pigment, but not essential to the hexagonal plates composing the membrane; because these may and do exist without the black particles.

This is found to be the case with regard to the colourless part of the membrane, covering the *tapetum*, which is in like manner composed of an aggregation of hexagonal plates, but less developed, being smaller and separated from each other by greater intervals, and many of them having their angles rounded.

The pigment is said to be wanting in the eyes of albino animals. The colouring matter is certainly absent, but I have found, as from reasoning *a priori* I had expected, the membrane of the pigment to exist; the plates composing which, however, are still less developed than those of that part of the membrane which lies over the *tapetum* in the eyes of the horse, ox, &c. They are in fact, not hexagonal, but circular,—a structure similar to which I have found in the eye of a very young human *fœtus*.

Hence we may draw the following conclusions.

1. That the colouring matter is not essential to the membrane, although the plates composing it are always more developed when the former exists.

2. That the plates composing the membrane of the pigment in the *fœtus* exist in the same rudimentary state which is found to be proper to the membrane in albino animals,—and in the colourless part of the membrane in those animals which possess a *tapetum*.

As exactly analogous to the circumstance of the membrane of the pigment existing, although containing little colouring matter, I may mention, that the structure called *rete mucosum* exists in the skin of the white person, as well as in that of the negro, with this difference, that in the former, it contains little colouring matter, whilst in the latter, it contains a large proportion of that matter, being the seat of it, but not the colouring matter itself.

Moreover, as a counterpart of the total deficiency of colouring matter in the eyes of albino animals, with the persistence of the membrane, I may instance the pure whiteness of the skin of these animals, in which, however, I suspect the *rete mucosum* exists.

According to M. Desmoulins, the pigment of the eye disappears with age; the whiteness of the hairs of old people naturally strikes us as an analogous circumstance.

But to return to the structure of the membrane of the pigment. The hexagonal plates appear to be united together by means of mucous or cellular tissue, which is easily torn by a little traction, so that the fragments of the membrane always present a serrated edge, the angles being those of hexagons. Behind and around the ciliary processes, and on the posterior surface of the *iris*, the membrane of the pigment ceases to present the hexagonal structure, although still composed of small irregularly rounded masses of about the same size as the hexagonal plates, to which they are evidently analogous.

This change in the structure of the membrane of the pigment, which is only partial in the eyes of the *mammifera*, I have found to obtain in its whole extent in the eyes of those animals lower in the zoological scale which I have examined; except in the anomalous eye of the cuttle fish, in which I found an approach to the hexagonal structure, in that part of the pigment, which is found on the posterior surface of that structure in which the crystalline lens is enchased, and which I have described, in a paper on the structure of the eye of the cuttle-fish, in the *Fifth Number* of the *Second Series* of the *Journal of Natural and Geographical Science*, as being analogous to the ciliary processes of the eye in the vertebrate animals.

In the eye of the horse, ox, &c., where the membrane ceases to present the hexagonal structure, its texture is very loose and the colouring matter abundant.

In the human eye (one which had been macerated a long time in spirits) I found, on the contrary, the membrane stronger, and capable of being isolated in larger pieces than farther back. And by minute dissection, assisted by the microscope, it may be shown to be continued over the ciliary processes, all the projections and depressions of which it follows, so as to entirely envelope them. Hence it is to be noted that what are commonly called the ciliary processes are composed of two parts, 1*st*, The vascular part, which consists of processes from the choroid. 2*d*, The membrane of the pigment, which moulds itself on the former, in such a manner as to appear, in the human eye, to the naked eye, like an integrant part of their proper texture, which it is not. The membrane, where it lies over the projections of the processes, contains little colouring matter, but much more in the depressions between them.

After enveloping the ciliary processes, the membrane of the pigment is continued into what is called the *uvea* on the posterior surface of the *iris*.

With regard to the chemical nature of the black particles, they chiefly consist, according to Berzelius, Mondini and Coli, of carbon and the black oxide of iron.

ART. X.—*Account of some New Experiments on the Sensibility of the Skin, by Dr* WEBER, *Professor of Anatomy at Leipzig.* By ALLEN THOMSON, M. D.

IT is a fact well known to physiologists, that there is a considerable difficulty in pointing out with certainty, when unaided by sight, any spot on the skin that has been touched, and in distinguishing how much of the common feelings of touch is due to the sensibility of the skin, and how much is derived from the muscular sensation produced by the motion of our limbs. It is also well ascertained that some parts of the skin are better adapted than others, either from their original structure, or in consequence of their being more exercised, to convey to the mind an exact impression of the physical qualities of the bodies with which they are brought in contact. It must be allowed, however, that our knowledge respecting this part of the physiology of the sense of touch is by no means definite.

Professor Weber of Leipzig has lately performed a very simple and ingenious set of experiments which illustrate the subject of the sense of touch, and furnish us with a mode of measuring with considerable accuracy, the relative acuteness of this sense in different parts of the skin of the same or of different individuals.

These experiments consist in placing the two points of a pair of compasses at different distances from one another, and in various directions, upon different parts of the skin of an individual who is not permitted to see the bodies touching him.*

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* The sharp points of the common compasses may be blunted with a little sealing-wax, which will have the effect also of taking away the cold feeling of the metal.

Professor Weber thus found, that, according to the distance of the two points from one another, we may have the feeling either of one only or of two tangent points, and that the distance at which we become sensible of the double impression is in the inverse proportion to the acuteness of the sense of touch in the skin; or, in other words, that we recognize a double impression made on very sensible parts of the skin, although the points are situated very near one another, while in those parts of the skin in which the sense of touch is obtuse, the points may be removed to a considerable distance from one another, and yet convey to us the feeling of only one impression.

In August 1831, Professor Weber was so kind as to show me some of the more striking of his experiments, and at the same time presented me with an account of them originally published in detached parts as "Annotationes" to some of the inaugural dissertations of the Leipzig University. He had also printed these annotations in a separate form, but I am not aware whether they have ever been published. To the best of my knowledge no notice of these experiments has as yet appeared in this country, which induces me to believe that a short account of them will be acceptable to the readers of the Edin. Med. and Surg. Journal.

Professor Weber has embodied the principal results of his experiments on the varieties in the acuteness of the sense of touch of different parts of the skin in eight propositions, of which the following is an abstract.

Prop. 1. The different parts of the skin or organ of touch do not possess an equal power of distinguishing two bodies by which they are touched at the same time. The distance of the two touching bodies being known, the degree of this power may be measured; for it is ascertained that if the organ of touch does not perceive the contact of two bodies when they are near one another, it becomes sensible to the impressions of both when the distance between them is increased.

If the touching points are sufficiently distant, we not only distinguish the impressions of both, but also the direction, longitudinal or transverse in relation to the body, in which they are applied to the skin. When they are brought nearer to one another they first give the sensation of the contact of a long body, but when brought still closer together they appear as a single point upon the skin.

The ends of the fingers and the tip of the tongue have the power of distinguishing the distance of two points nearly equal, and in a much greater degree than any other part of the body. At two-fifths of a Paris line we are capable of distinguishing the longitudinal from the transverse position of the points on the tip of the tongue. At half a line two impressions are felt, more especially when the points are made to touch at the same time the upper and lower margins of the tongue, or the dorsal and palmar sides of the fingers; but in most other parts of the body this is different; for

Prop. 2. In many parts of our bodies we perceive the distance and situation of two points touching us at the same time more distinctly when they are placed parallel to the transverse than to the longitudinal direction of the body.

This may easily be tried in the middle of the arm or forearm: here the two points may be distinguished at a distance of two inches when placed in a direction across the arm, but they appear as one at this distance, or even (in some persons) at three inches when placed longitudinally.

Under this proposition Professor Weber has placed a very long table, which may be considered as a detailed register of his experiments, and in which are exhibited the distances at which he was sensible of a single or double impression from the contact of the two points with different parts of his skin. It is difficult on a cursory view of that table to follow the general results, and on this account I have preferred giving only a shorter and more illustrative one which follows it, in which the parts of the skin are arranged according to the acuteness of their sense of touch, as measured by the smallest distance at which the horizontal or transverse position of the two points and a space between them could be distinguished.

	Paris lines.
Tip of the tongue,	$\frac{1}{2}$
Palmar surface of the 3d phalanx of the fingers,	1
———— 2d ————	2
Red surface of the lips,	
Point of the nose,	3
Dorsal surface of the 3d phalanx of the fingers,	
Palmar surface of the heads of the metacarpal bones,	
Dorsum of the tongue, 1 inch from the tip,	4
White surface of the lips,	
Margin of the tongue 1 inch from the tip,	
Metacarpal part of the thumb,	
Point of the great toe,	5
Skin covering the buccinator,	
Dorsal surface of the 2d phalanx of the finger,	
Palmar surface of the hand,	
External surface of the eye-lid,	
Mucous membrane on the middle of the hard palate,	6
Anterior part of the zygomatic bone,	7
Plantar surface of the metatarsal bone of the great toe,	
Dorsal surface of the 1st phalanx of the fingers,	

	Paris lines.
Dorsal surface of the heads of the metacarpal bones,	8
Mucous membrane of the lips near the gums,	9
Posterior part of the zygomatic bone,	10
Inferior part of the forehead,	
Posterior part of the heel,	
Inferior part of the hairy occiput,	12
Back of the hand,	14
Neck under the lower jaw,	15
Vertex of the head,	
Patella and thigh near it,	16
Sacrum,	18
Shoulder and arm near it,	
Gluteal region and thigh near it,	
Superior and inferior part of the fore-arm,	
Leg near the knee and foot,	
Dorsum of the foot near the toes,	
Sternum,	20
Spine of the back at the fifth superior vertebra,	24
Neck near the occiput,	
Loins and bottom of the thorax,	
Middle of the back of the neck,	30
Middle of the back,	
Middle of the arm, except where the muscles swell most,	
——— thigh, ———	
On these swellings of the muscles on the extremities, as also over the sacro lumbales, from	36 to 42

Prop. 3. In those parts of our body in which the impressions of both points are clearly distinguished although not distant, the space between these points appears to be greater than in other parts possessing a less sensible touch.

The experiments illustrative of this are very striking. They may be best performed by drawing both the points of the compasses gently along the skin, from a sensible to a less sensible part, or *vice versa ;* as from the hand along the fingers, from the cheeks or ear across the lips, and towards the nose ; from the jaw to the chin, from the occiput to the sacrum, with a point on each side of the median line, and from the chin to the pubis, in the same manner. In passing over the more acutely sensible parts, the points of the compasses seem to open or to recede from one another, and the reverse takes place in those regions in which the sensibility is obtuse.

Prop. 4. If the points are placed on two contiguous parts which may be moved voluntarily and independently of one another, the double impression is much more clearly perceived, and the points appear more remote from one another, than if at the same distance, they were brought in contact with one entire part. This is easily shown on the lips, fingers, and eye-lids.

Prop. 5. We distinguish the two points more clearly, if they are brought into contact with two surfaces having a different structure and use, than when they are applied to one and the same surface.

This rule also holds in respect to surfaces possessing different degrees of sensibility; for in this case also, the points are more clearly distinguished when they touch two contiguous surfaces of different powers, than when they are both placed on the most sensible of them. This may be seen on the lips, by placing one point on the internal, and another on the external surface, in which position the points are distinguished at a smaller distance than in any other, although the surface of the lips directed towards the gums has a much less acute sense of touch than the red part. The same is the case with the white and red external surface of the lips.

To the same general rule may be referred another fact, viz. that a smaller distance of the points is perceptible when they touch at once the palmar and the dorsal surfaces of the fingers, than when they are both applied to one of these surfaces; and it may also be stated, under this head, that this power of distinguishing the points is generally greater when they are applied at equal distances on each side of a median line of the body.

Prop. 6. If we examine attentively the degree of acuteness of the touch in each part of the body, we shall find that this varies not only in the larger parts, but that there are also small spaces, in some of which the sense is more acute, in others in the immediate neighbourhood more obtuse. These points, however, do not vary to a great extent in the degree of their acuteness, nor has Professor Weber discovered any fixed order according to which they are disposed.

This observation would seem to show that the nervous fibriles are not quite equally distributed throughout the skin.*

Prop. 7. If we are touched with greater force by one of the points than by the other, the impressions of both are distinguished less easily; for the stronger obscures the weaker.

Prop. 8. We distinguish two separate impressions more easily when they are not made exactly at the same time; and on this account, in performing all the experiments previously referred to, it is necessary to pay great attention in order to make the contact of both points synchronous.

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* The presence of these slight variations appears to be indicated remarkably in some parts of my skin, by a very curious feeling of irregularity, which occurs when one or two points are drawn along these parts.

After announcing these general propositions, Professor Weber proceeds to describe some varieties in the sensations communicated by the contact of the two points in particular regions of the body.

Touch in the Extremities.—The middle of the arm, thigh, fore-arm, and leg, or a place near it, at which the greatest quantity of muscles is collected, has the bluntest sense of touch, the fore-arm is a little more sensible than the arm, the leg than the thigh, and the fore-arm is on the whole more sensible than the leg. The convex part of the joints as the skin over the patella, olecranon, and acromion are more sensible than that in the popliteal space, the bend of the arm and the axilla. The internal surface of the arm, and the posterior surface of the leg, do not differ much respectively from the external nor anterior. The arm and leg are far excelled by the hand and foot, and the hand is greatly superior to the foot. In the hand, touch is much more acute on the palmar, than on the dorsal surface. The skin over the heads of the metacarpal bones is more sensible than that in the middle of the palm; and the sensibility gradually increases from thence towards the points of the fingers. The heel is more sensible than the middle of the sole of the foot. The dorsum of the hand and foot are surpassed by the lower ends of the fore-arm and leg. In general the distal end of the arm and leg is more sensible than that towards the trunk, yet the skin over the deltoid muscle surpasses that towards the elbow.

In the extremities the transverse is always much more easily perceived than the longitudinal position of the touching points.

On the Head.—The hairy scalp is the least sensible part of the skin of the head; it is more sensible, however, than that of the neck. The skin near the forehead and temples is more sensible than that on the vertex. The sides of the jaws come next, and the parts of the face are more and more sensible, as they are nearer the median line, the point of the nose and the red part of the lips. The inner sides of the lips are less sensible the farther they are from the margins. The gums are susceptible of considerable pain, but possess very little power of distinguishing the distance of the two points. It would appear that we can sometimes ascertain the distance and direction of the points by means of the teeth or their pulps. The most sensible part of the point of the tongue occupies only a small space—four or six square lines. The touch of the tongue becomes less acute on all sides as we recede from this. The soft palate has a more acute sense of touch than the hard palate.

On the Trunk of the Body.—The sense of touch on the surface of the trunk of the body is less acute than that of the head and extremities; and there is no part of the trunk possessed of the same acuteness as the tongue, lips, fingers, nose or hand. The mammæ even have not an acute sense of touch. From this, as well as several other observations, the important deduction may be made, that the acuteness of the sense of touch is very little connected with or in proportion to the susceptibility of the skin to be affected with pain or titillation, and that tenderness of the skin by no means indicates acute sensibility, or acuteness of the sense of touch.

One of the most important differences between the sense of touch in the trunk and that in the extremities consists in this, that on many parts of the trunk the horizontal or transverse position of the points is not more easily recognized than the perpendicular or longitudinal.

In a considerable series of experiments which Professor Weber made in illustration of the relative acuteness of the sense of touch in different parts of the trunk, he chose three horizontal lines encircling the body in the regions of the neck, thorax, and abdomen, and four vertical lines, passing from the head downwards to the inferior extremities, and measured the power of touch as before, by placing the two points at different distances and in various directions on these lines.

In placing the two points at a distance of about two inches, in a horizontal position, on the line surrounding the thorax, from the ensiform cartilage, a little below each mamma, he found that there are four places at which the distance of the two points is most obvious. These places are in the middle before and behind, and on the two sides. We perceive the two points most distinctly when they are placed equidistant on each side of the median line; the clearness of the double impression diminishes as soon as they are moved to one or other side. Nearly the same, though with less distinctness, is the case in the middle of the two sides.

On applying the two points in a vertical direction across the horizontal line surrounding the thorax, there are four places in which the double impression is less clearly perceived than in others; or the sensibility appears most obtuse in the same region in which the horizontal application of the points is most clearly perceived; and *vice versa.* This inverse ratio does not, however, hold in all the intermediate regions.*

In the second horizontal line surrounding the abdomen about an inch above the umbilicus, the longitudinal and transverse application of the two points give nearly the same results as in the thorax. But, in the third line surrounding the neck, Professor Weber states, that the results were so inconstant as to render an account of them unnecessary.

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* It must be remarked, that, in Professor Weber's account of his experiments, there is an apparent contradiction in respect to this; for at one place he says there are four places in which the vertical position is least clear,—two behind and before, and two on the side; and at another he says, that it is clearest of all on the sides. I have found the vertical position of the points more clearly distinguishable on the line passing from the axilla to the ileum, than either before or behind it.

In the anterior median line, extending from the chin to the symphysis pubis, the transverse position of the points gives the clearest impression on the chin, and next on the upper part of the neck. The points seem to approach one another as they are brought to the bottom of the neck and top of the sternum; the sensibility is increased on the sternum and again diminished at the lower part of the thorax and upper part of the abdomen; a little above the umbilicus it increases again rapidly towards this part; below it, the points appear again to approach one another, and coalesce into one on the symphysis of the pubis.

The application of the two points in a vertical or longitudinal direction on the anterior median line, showed nearly the same alternate increase and decrease of the power of touch.

On the posterior median line, extending from the occiput to the coccyx, the transverse and longitudinal position of the points is most easily recognized near the occiput and between the glutæi muscles. The sense of touch increases to a considerable degree from the sacrum towards the anus; and there is also a place between the scapulæ, on which it is considerably greater than above or below.

In the median lines, therefore, it appears that nearly the same varieties of the sense of touch are perceived by the longitudinal and transverse application of the points; which would seem to show that in these lines of the body the varieties in the sense of touch ought to be attributed not merely to the difference of direction of the course of the nerves, but also to their existing in greater or less quantity, and their being endowed with a more or less acute sensibility.

On the lateral longitudinal lines, extending from the axilla to the crest of the ileum, the sense of touch seems to be greatest towards the axilla, and towards the crest of the ileum.

The Causes of this diversity in the sense of touch in different parts of the body, seem on the whole not to be well ascertained. It is sufficiently obvious that the greater sensibility of some parts of the body does not depend on their being more frequently seen than others, as some have supposed to be the case; the middle of the back of the hand, constantly exposed to view, is surpassed by the fingers and palm, and even by the lower end of the fore-arm; the same is the case with the dorsum of the foot. The skin over the os sacrum and coccyx, though beyond the range of vision, is comparatively very sensible. The sensibility of the sub-mental surpasses that of the sternal and abdominal regions; and, though the anterior is generally more sensible than the posterior surface of the body, this would appear to be connected with the structure of the skin rather than with the sight, for the sacrum and coccyx are more sensible than the pubis. Examples of blind persons also, and the great improvement their organs of touch are susceptible of from exercise, sufficiently show that sight has very little to do with our power of distinguishing by touch different regions of the skin. Nor does this power appear to depend chiefly on any mechanical advantage of one part over another, as, for example, that some parts are fixed on bones, and others very moveable. The tip of the tongue and free part of the lips which are loose, and the points of the fingers which are fixed, are possessed of nearly equally acute powers of touch.

The cause of these variations is probably to be sought for in the structure of the skin, with which subject we are as yet, as regards the distribution of the nerves at least, very imperfectly acquainted. It seems to be obvious, however, that the great power of touch does not depend on the presence of papillæ, for the mammæ and some other parts with numerous papillæ have yet a very blunt sense of touch. The tongue has papillæ over its whole upper surface; but it is only at the tip that the sense of touch is very acute.

Many experiments seem to show that the direction of the course of the larger and smaller nervous twigs has some influence over the power of the skin, by which we distinguish the separate impressions of the points. The greater power which we have of distinguishing the points in a transverse than in a longitudinal position on the arms and legs, while on the face and some parts of the trunk of the body a position of the points parallel to the longitudinal direction of the body gives the clearest double impression, would seem to show that in general the feeling of the distance of the points is most acute, when they are applied across the direction of the nerves in their course. There are, however, other varieties which cannot be so easily explained in this manner, and it becomes necessary to have recourse to the supposition, that the quantity of nervous matter, as well as the mode of its distribution in the skin, may influence to a considerable extent the acuteness of the sense of touch. Sufficient attention has not as yet been given to this part of the subject.

The effect of Motion of our organs, and of the bodies touching them, in augmenting the acuteness of the sensation, is very remarkable. When two points, for example, placed upon the skin appear as one, we can often recognize their double impression by moving the skin. It is thus that by moving the fingers we discover the asperities on surfaces which could not be felt, were the finger held at rest over them. We also acquire a more accurate knowledge of the nature of an impression, by having it made on different parts of the skin in succession. By a peculiar internal feeling, called the muscular sensation, informing us of the extent of muscular contraction, we come to know the direction and space in which our limbs are moved; and every one knows that this feeling is of very considerable importance in aiding the sense of touch, and in improving that kind of touch frequently distinguished in this country by the term Tact. It has already been remarked, that it is not unfrequently difficult to discriminate whether we judge of the qualities of a surface by the sensibility of the skin, or by the muscular sensation. We can in general tell immediately the direction in which any one pulls the hair of our head; but the knowledge of this direction is not derived, as might be supposed, from the sense of touch, but depends on an exertion of the muscles of the head, which is immediately and insensibly made with the view of resisting the motion of the head, which without it would occur. On fixing the whole head, it will be found that the power of distinguishing the direction still remains, though in a less degree. This seems to depend on the position of the skin in the neighbourhood being altered by traction, for when we fix the skin the power of distinguishing the direction in which the hair is pulled entirely disappears.

Another illustration of this is obtained from the following experiment. Shut the eyes, hold the hand steady, and let some one touch your fingers with, and carry along their points various substances, as paper, glass, metal, wood, quill, leather, linen, silk, or velvet; you will be surprised how often you mistake the one for the other, according as they are more or less lightly pressed against the fingers. Metals when of the same temperature as the hand can scarcely be distinguished from glass and other substances with a smooth surface. When the finger of one person is conducted by another into a fluid, the slight pressure over a considerable surface informs him of its presence. If a person draws a plane surface along the finger of another, pressing at first gently, then gradually more strongly, and again gently, the feeling of a convex surface will be communicated to the finger, and that of a concave surface may be given by the greatest pressure being made at each end.

Professor Weber next relates some experiments which he performed with the view of ascertaining how far we are capable of judging of the Weight of bodies by the sense of touch in the skin, and how far it is necessary that we should be assisted also by the muscular sensation; for it is obvious that in general we make use of both these means to obtain a correct estimate of weight.

He found that when two equal weights* are placed on corresponding parts of the skin, he might add to or subtract from one of them a certain quantity without the person on whose skin they were laid being sensible of any change or inequality in them. He ascertained that when the hand or any other moveable part of the body is laid quite inactive on a table, a much greater change can be made in the relative weight of the two bodies, without its being perceived, than when the limbs are free and capable of muscular exertion: that thirty-two ounces or drachms, for example, may be altered by from eight to twelve, when the hand is motionless and supported, but only by from one and a half to four, when the muscles are in action; and hence Professor Weber infers, that the measure of weight by the touch of the skin alone is more than doubled by the assistance of the muscular sensation.

By these experiments it was found that the lips estimate weight more correctly than any other part of the body: the fingers and toes may be reckoned next, the second phalanx being inferior to the third, and the first to the second: the palm of the hand and sole of the foot, especially the parts covering the ends of the metacarpal and metatarsal bones, possess also a considerable power, while the back, thorax, abdomen, scapulæ, arms, legs and occiput have very little power of estimating weight; which observations obviously show a considerable correspondence between those parts of the skin possessing the most acute sense of touch, and those estimating weights most correctly.

Professor Weber attributes to a more acute sense of touch in the left arm, the circumstance, that to most persons weights appear heavier to the left than to the right arm. This is no doubt to a certain extent caused by the common preponderance of the muscles of the right arm over those of the left; but Professor Weber states that he has also proved that in a large proportion of the individuals on whom he has experimented, the sensibility of the skin on the left arm is greater than that on the right, and he has found, that though the hand is not assisted in any degree by the muscular action or sensation, as when it is steadily supported, weights still appear heavier to the left than to the right arm. Of fourteen individuals of different classes of society, eleven found the weights heaviest in the left hand, two heaviest in the right, and in one there was no difference between the right and left. He also ascertained that this acuteness of touch in recognizing weight, resides not only in the left hand but also in the left foot and scapula.

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* The weights employed ought to be made of the same material, and must present the same size and form of surface to the skin. In order to insure this, and to correct the difference of temperature, it is well to interpose similarly shaped pieces of pasteboard between the weights and the skin.

In concluding this account of Professor Weber's researches, which I regret I have been obliged to shorten too much, I may state that I have repeated a considerable number of the experiments on the comparative sensibility of different parts of the skin on my own person, as well as on other individuals, and have obtained very nearly the same results. The acuteness of the sense of touch over the whole skin seems to me to vary more or less in different individuals; but I have not observed any striking deviations from the results recorded in Professor Weber's papers, in respect to the relative acuteness of this sense in the different regions of the body.

ART. XI.—*Note on the Modes in which Death takes place in Cholera.* By SAMUEL GASKELL, Esq. Stockport Infirmary, being Appendix to the paper No. vi. p. 52.

IN the cases referable to the first form of the disease, the fatal termination is gradual and almost imperceptible; the patient remains in a pulseless state for a longer or shorter period, according to the intensity of the attack; the respiration becomes quick and short, but easy and regular; at length the impulse of the heart is no longer perceptible, and the respiratory action gradually ceases; a few respirations are always observed after the cessation of the heart's action. During the progress of these changes the body is motionless, and it is difficult to determine at what precise period the vital actions have ceased.

In the cases referable to the second form, the respirations are heaving and laborious, the action of the heart tumultuous, the pulse oppressed, but rarely imperceptible. The respirations become more laborious and heaving, and the interval between each inspiration is gradually prolonged, until the action ceases altogether. Shortly after the last expiration, a violent throbbing is observed in the præcordial region, accompanied with a fluttering in the course of the carotid and subclavian arteries. The patient, up to the time of death, is restless, and appears much distressed by a sense of oppression. The body after death is much darker, but less shrunk in this than the other class of cases.

The most superficial observer at once detects a striking distinction between these two modes of fatal termination. It is almost needless to add, that in the first class of cases death occurs by failure of the heart's action, in the second, by obstruction to the respiratory functions. We thus perceive, that from the first symptom to the termination in death or recovery, a division of cholera into two classes is strikingly indicated; but a stronger reason for such a classification may be urged, if we take into account the very opposite kind of treatment required in these two states of the system.*

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* For Mr Gaskell's remarks on the treatment, see "Observations on the Cholera *of Manchester* by Dr Gaulter."

PART II.

CRITICAL ANALYSIS.

ART. I.—*The Cyclopædia of Practical Medicine.* Edited by JOHN FORBES, M. D. ALEXANDER TWEEDIE, M. D. and JOHN CONOLLY, M. D., &c. Vol. II.

IN resuming our account of the contents of this work, we begin by laying down the general principle formerly announced, that it is quite superfluous to advert to every article; and we shall merely direct the attention of our readers to those which appear either, in regard to the subjects of which they treat, or the manner in which they are treated, to merit most attention.

We shall also in this account adhere to the arrangement formerly observed, that, namely, of identity of authors, and similarity or affinity of subjects.

In *Materia Medica* we find two instructive articles on *Emetics* and *Expectorants*, by Dr A. T. Thomson.

In the former article the author, after a view of the different theories which have been maintained on the mechanism of vomiting, by Chirac, Litre, Lieutaud, Magendie, Sir Charles Bell, and Dr Marshall Hall, gives one of his own, in which, modifying the sentiments of the latter author, he infers, that the act of vomiting is the result of the simultaneous action of all the muscles of respiration, at a moment when the *glottis* is shut, and offers resistance to the ascent of the *diaphragm*,—as, in short, an expiratory effort, but which is abortive by reason of the *glottis* being closed.

In the article on *Expectorants* the author divides that class of medicines into two orders, topical and general expectorants. To the former he refers all those agents which are applied to the surface of the bronchial membrane in the form of vapour, as benzoin, acetic acid, chlorine, the fumes of tar and undressed wool, and the fumes of tobacco and stramonium,—and emetics which operate, he conceives, by mechanical compression; and under the latter head he arranges all those substances which, being received into the circulation, act thereby on the bronchial membrane, or act on that membrane by previous influence on the gastric. This order contains, 1*st*, all the emetic expectorants, as ipecacuan and squill, the stimulating gums, as myrrh, ammoniac, assafœtida, styrax, benzoin, balsam of Tolu and Peru, and Copaiba, and such substances, as horehound, colt'sfoot, and Iceland moss; and 2*d*, the nauseating expectorants, as the antimonials. The latter, we conceive, might have been advantageously arranged with the emetic expectorants, ipecacuan and squill, since both seem to operate in the same manner, by modifying the circulation of the gastric mucous membrane, and thereby that of the bronchial mucous membrane.

The article is one of much interest; and the concluding observations on the circumstances regulating the selection of emetics deserve the particular attention of the practitioner.

The articles *Emphysema*, *Emphysema of the Lungs*, *Empyema*, *Displacement of the Heart*, and *Hypertrophy*, are very ably treated by Dr Townsend.

In the first article the observations on spontaneous *Emphysema* are extremely valuable, in so far as they present a short general view of the scattered facts recorded on the nature and causes of that process in the living body. This depends either on decomposition of the fluids, when it cannot take place in the living body without the occurrence of gangrene, general or local, or at least decomposition of the contents of the cavities, as the stomach and intestines, or on the secretion of air from some of the membranous tissues, as in the case of the cellular membrane.

In that on *Emphysema of the Lungs*, the author gives an account of the causes and nature of that affection much after the manner of Laennec.

In the article on *Empyema*, or effusion of fluid, purulent, sero-purulent, or bloody, into the cavity of the *pleura*, Dr Townsend gives a very excellent account of the causes, various forms, effects, and characteristic symptoms of that affection. From the results of ten cases of *empyema*, in which the operation of *paracentesis* of the chest was performed in London, chiefly under the direction of Dr Thomas Davies of the London Hospital, and in which eight recovered, Dr Townsend properly infers, that the operation should always be performed when the disease can be positively recognized, and when the symptoms are urgent. In cases of *pneumathorax*, in which the pleuritic inflammation is too often the effect of the progressive destruction, occasioned by tubercular softening, it appears to be less eligible. In nine cases in which the operation was performed in London, all died; and in all the *pneumathorax* was complicated with, or, in other words, had arisen from tubercular disease of the lungs. In three cases of *hydrothorax* in which it was performed, the symptoms underwent temporary mitigation; but all were the consequence of disease of the heart; and death took place in the usual course of symptoms.

Upon the whole, it must be inferred, as Dr Townsend has done, that the operation is frequently successful when the patient is young and of good constitution, the effusion moderate in quantity, recently formed, and unaccompanied with organic disease of the lungs; in other words, when it is the consequence of acute *pleurisy* attacking a person with lungs otherwise sound.

The observations on the details of the mode of operating are judicious, and deserve the attentive perusal of the practitioner.

In the article on *Displacement of the Heart* by the same gentleman, a very full view of the varieties and causes of that derangement of position is given. Like most of the authors by whom this subject has been treated, Dr Townsend distinguishes these varieties of displacement into the two general heads of congenital and accidental, or the result of morbid changes. Of the first order there are two subdivisions, one in which the heart is still situate in the chest, but in which its position or direction is considerably altered from the natural; the other, in which it is entirely removed from the heart, and placed either on the abdomen, or on the neck, or some similar unusual locality. The second order of displacements are those in which the heart is forcibly displaced by some morbid change in some of the contiguous organs, or, in part, on the locality of the organ itself, viz. those which are the consequence of *empyema* in excessive quantity, aneurism of the *aorta*, tumours within the chest, pulmonary emphysema, diaphragmatic hernia, enlarged liver and hypertrophy, with dilatation of the organ itself.

The article on *Hypertrophy* contains a good general view of the appearances which that change assumes in the different tissues and organs of the human body.

The subjects of *Endemic* and *Epidemic Diseases* are treated shortly, but in a very interesting manner, by Dr T. Hancock.

In speaking of ague, remittent fever, and *malaria*, Dr Hancock adopts the views taken by Dr Irvine, in his account of the Diseases of Sicily, Dr W. Fergusson, in his account of the characters of the Marsh Poison, and Dr Joseph Browne of Sunderland, and which may be said now to be perfectly confirmed by the observations of Dr Ranken and others in the East Indies, Dr Clark in Italy, and Dr Hennen in the islands of the Mediterranean. From these observations it results in general, that though agues and remittents prevail much in marshy districts, marshy soil, properly so called, is not necessary to the production of these diseases. They take place most readily at a certain period of the process of desiccation of the soil;

chiefly under the influence of solar heat, unaided or little aided by wind; and while, in a soil which is either so wet as not to be exposed in desiccation, or so dry as not to admit of further desiccation, they disappear, they begin to return the moment that the desiccating process begins, under the influence of increasing heat in the one case, or recent wetting in the other, to advance.

In this article, however, especially when speaking of ague and *bronchocele*, we observe an example of that species of unnecessary repetition to which we formerly adverted. It is not, in the present case, very injurious; but perhaps the arrangement would have been more conducive to economy, had all that was to be said on the etiology of these diseases been placed under their respective heads.

The ability of Dr Hancock as a writer on epidemic diseases, is already well known by his *Researches into the laws and phenomena of Pestilence*; and the article on *Epidemic Diseases* displays the same attentive inquiry into facts, the same judicious appreciation of evidence, and the same fairness in drawing inferences.

Dr Hancock impresses particularly the connection of certain states of weather, and certain circumstances in the public health, as precursors, in all instances, of epidemics; and though quite aware of the confusion which prevails among medical reasoners regarding the exclusive influence of contagion on the one hand, and the epidemic influence on the other, he studies to show, by a careful comparison of evidence, that even diseases decidedly and unequivocally contagious do not spread, however, without the epidemic influence, while with the latter, diseases not contagious may attack communities in great numbers.

We subjoin the following extracts.

> " Now if any one should enquire what are the effects of that peculiar state of air which ushers in an epidemic pestilence, the answer attested by long experience is, the occurrence of malignant fever. This is one part of the history of such events. But let us notice more particularly the observation which Dr Heberden has annexed to the statement of this fact, viz. that 'at its first breaking out, the disease has never been known to be the plague.' The simple reason of this extraordinary circumstance, and of the doubts and dissensions which have sprung from it, is the gradual and imperceptible change of the malignant fever into the true pestilential fever or plague, and the contrariety of this fact to the medical systems and authorities which have assigned different forms of the same disease to different classes and orders in nosology. We may almost take shame to ourselves that we belong to a profession which, either from the imperfection of the science itself, or from the deficient observation of its followers, has exhibited so many instances within the last two centuries in different countries, of re-

proachful contention among the faculty, on the eve of pestilence, about its name and nature; and which hitherto has laid down so few solid data to secure practitioners from future quarrels on the same ground. Leaving the disputes about contagion out of the question, the disputes about name or nosological terms have agitated physicians in Italy and France, and Russia and Germany, and Spain and America, not excepting our own country, till the sober and impartial members of the profession are mortified, and legislatures are wearied and disgusted; for the latter know not what is really matter of fact, and the former are unwilling to ally themselves with such fierce combatants. Lord Bacon's aphorism, in its general signification, has been repeatedly confirmed since his time, that 'the lesser infections of small-pox, purple fever, agues, &c. in the preceding summer, and hovering all winter, do portend a great pestilence the summer following; for putrefaction rises not to its height at once.' Lord Bacon was too much of a philosopher to intercept the regular series of natural phenomena by his own fancies, and too little of a systematic writer on medicine to perplex himself with the trammels of artificial distinctions imposed by names. But some physicians have endeavoured to show that there was only a casual connexion between the pestilential epidemic and the malignant fever, its forerunner; and numbers have on such occasions involved themselves in keen disputes, whether the name of malignant fever or that of plague was the proper appellation of the epidemic pestilence itself. In this way they have too generally trod the thorny ground of contention instead of the simple path of faithful observation; and the consequence is, that we have more of counter-statements than of unquestionable facts reported to us from the scene of every pestilential visitation.

"Nevertheless, all is not confusion; and there are some things on which medical science may repose with satisfaction in reference to this part of the subject. Two important observations belong to it: the one is, that the malignant fever which precedes the plague, commonly reappears at its decline; and the other, that during the continuance of the epidemic pestilence itself, at least during its active prevalence, all other forms of epidemic disease, such as those which are peculiar to the place and to the season of the year, are entirely extinguished. With regard to the former, it may be noticed, that one of the first and most evident signs of the epidemic pestilence being about to cease its ravages, is the appearance of another form of epidemic fever, generally of that which preceded, and sometimes of a new train of diseases; this new order of things indicating that the pestilential constitution is changed, or, at least, the disposition in the air to foster and spread the principal disease, completely for the time removed. The second fact is interesting, both from the antiquity of the observation and from its accordance with modern experience; that, while the tyrant disease is prevailing, it usurps complete dominion, and suffers no other disease to appear of an epidemic character. This was noticed in the plague of Athens by Thucydides; and every pestilence since that memorable period has verified the observation. It was noticed particularly in the last plague of Malta. A fact recorded by Sauvages places this circumstance in a very strong light, viz. that when the plague was raging in the south of France in 1720–21, no greater number of persons died of the disease in the town of Alet—and none died of any other disease—during the year of its visitation, than used to be carried off by other diseases, though the plague absorbed all others, or in fact put them to flight while it was prevailing. This is an incontestible fact, and a sufficient answer to those who deny the operation of any general cause. For it is perfectly clear that if a vessel from Sidon brought the plague to Marseilles in 1720, as was alleged, and that the contagion was conveyed from thence to Alet in Languedoc in 1721, as was asserted, this accidental circumstance, upon that hypothesis, must have exerted a most extraordinary influence on the atmosphere of the town of Alet, or rather on the constitution of every one in it, if it put every other form of mortal disease to flight for a whole year after."—Pp. 75, 76.

The following observations on contagion, which are temperate, and shun the vice of giving an exaggerated view of the influence of that invisible agent, may be perused with attention.

"It might appear that we were departing from the rule at first laid down, and entering upon disputable ground by taking any notice of contagion; but the observations to be made being formed by decided advocates of that doctrine, they ought at least to merit due attention from all who do not deny it, especially from those who ascribe so much more to contagion than to atmospheric influence. Dr Russell informs us that at the beginning of an epidemic plague the contagion is so feeble, in other words, so many of the attendants escape infection, and such long intervals occur between the cases, as to cause serious perplexity respecting the nature of the disorder; and that the contagious property is nearly, if not quite extinguished, at the decline, both in persons and clothes, must be obvious to every unbiassed observer who considers the facts; for the disease has never ceased in any place for want of subjects to act upon. And the comprehensive remark of Dr Russell is a striking answer to those who can trace the extinction of an epidemic plague to no other means than police regulations. It is in these words: 'From what has been said of London, Aleppo, and Marseilles, it would seem as if there was little observable difference in the mode of its termination, in cities where purification was practised, and where it was not.'

"In all stages of the bilious pestilence of America its contagious property is so indistinctly marked, that Dr Rush felt himself obliged to confess that 'the interests of humanity were deeply concerned in the admission of the *rare* and *feeble* contagion of the yellow fever.' And although contagion is what popular opinion fixes upon the plague as its necessary attribute, yet there cannot be a shadow of doubt, that all times this contagious property of the disease depends on so many contingencies to give it force, as to justify the remark of Dr Russell, 'that the dread of contagion may, consistently with truth, be moderated.'"—P. 77.

He finally adopts the temperate views of Dr Russell, that "the constitution of the air is the cause which heightens or lessens the susceptibility of the contagion."

In further illustration of the same views, we give an extract from a subsequent part of the essay regarding the safety of inspecting articles susceptible of infection from countries in which plague prevails almost annually.

"It is a singular illustration of the preceding views, that in none of the quarantine establishments on the continent, and in none of the stations appointed for the purpose in the British islands, along so great an extent of coast, engaged in such universal commerce, and for such a number of years, has there ever been an instance of a person suffering death in the process of expurgation or purification of goods imported from countries afflicted with pestilence. Evidence to this effect, so far as it relates to our own shores, was laid before a select committee of the House of Commons in 1819.

"Professor Assalini, who has given us some interesting particulars concerning the plague of Egypt, communicates the result of his inquiries respecting the matter in question in these words. 'It has often been said, that in breaking open a letter, or in opening a bale of cotton containing the germ of the plague, men have been struck down and killed by the pestilential vapour. I have never been able to meet with a single eye-witness of this fact, notwithstanding the inquiries which I have made in the lazarettos of Marseilles, of Toulon, of Genoa, Spezia, Leghorn, Malta, and in the Levant. All agree in repeating that they have heard of such an occurrence, but that they have never seen it happen. Citizen Martin, captain of the lazaretto at Marseilles, who for thirty years has held that situation, told me that during that time he had seen opened and emptied some millions of bales of cotton, silk, furs, feathers, and other goods coming from several places where the plague raged, without having ever seen a single accident of the kind.' The chief physician of the lazaretto at Malta informed Dr Maclean, that during the period of fifteen years in which he frequented the lazaretto, no cargo arrived, the expurgation of which infected a single individual in the establishment; and according to the testimony of the deputy-inspector Grieves, none of the persons so employed were affected in that island during the plague of 1813.

"If we go to the Levant, we have the evidence of Sir James Porter, that "all sorts of merchandise susceptible of infection pass through the hands of our English factors at Aleppo, Smyrna, or the places from whence they are shipped; they are examined strictly by them or by their servants; and there is not upon record, nor has a single living witness ever related an instance of an

English factor or servant's dying of the plague, at any of the seaport towns, or in any other part of Syria or Asia Minor, and but one only in Constantinople, in almost a century; though the disease very frequently rages in that metropolis.'"—P. 79.

The general result of these facts and arguments is communicated in the following aphorisms.

"1. Intemperature of the air, or a series of unusual and irregular weather, lays the foundation for acute diseases in a congregated mass of human beings.

"2. Deficient or unwholesome food predisposes the bodies of the poor, especially, to be acted upon by this intemperature.

"3. Local impurities, composed of effluvia from putrefying substances, in the vicinity of marshy situations or of large filthy cities, in proportion to their extent and to the concentration and virulence of the *miasmata*, aggravate the preceding causes by a partial pollution of the air.

"4. Human secretions and excretions, hurtful in this state of the body even without actual disease, but become virulent by accumulation, and poisonous when subjected to fever, acquire a degree of malignity which is proportioned to the congregated mass.

"Hence, if the air, and the soil, and the food, and the state of the animal secretions contribute each a part to the production of a pestilential fever, it cannot be said that the cause resides wholly in any one of them. From the combined effects of all, however, a predisposition is formed which makes some inhabitants of a town or city liable to pestilence sooner than others, some towns or cities sooner than others, some nations sooner than others, in proportion as they have been subjected to the causes before-mentioned. If so many causes did not successively concur to this effect, pestilence would be much more common than it fortunately is. We do not depend, therefore, upon the casualties of arresting contagious intercourse, or of expurgating imported *fomites*, but upon the rare concurrence of the several subordinate causes, for our exemption." —P. 80.

After some further remarks, flowing like corollaries from these aphorisms, on the kind and degree of precautionary measures to be adopted in order to prevent the propagation of contagious diseases, in which the author justly condemns the rigid and uncharitable system of seclusion practised under the quarantine laws, he returns to the consideration of the subject of contagion in the following manner.

"But, on the other hand, to maintain that indiscriminate intercourse may be allowed between the sick and the predisposed in their impure dwellings, and that human beings may be cooped up together, in plague or yellow fever, or Indian cholera, or malignant typhus, or dysentery, without adding either to their own danger, or to that of their attendants, is to take that ultra view which is opposed to the experience of all ages. We do not want nice distinctions about a contagious and infectious atmosphere for practical purposes: they are terms which give occasion to many words and to little practical good. The effects of each have been overstated, and of none more than of contagion, when viewed apart from other circumstances. Contagion of any disease can do but little harm at any time, in any country, unless there be a strong predisposition of body concurring with a pestilential season. The signs or indications of this pestilential season, and the way to remove this predisposition, are of far more consequence than the precaution against a foreign contagion. Judicious and moderate physicians are more and more tending to this view of the subject.

"Contagion is not a necessary incident of any disease; but some look upon it as constituting the very essence. A few brief remarks on this subject may perhaps be suitable in this place. The public are wearied with statements from medical men, that such and such diseases, of an epidemic nature, are contagious, and that they are not contagious. They may well wonder at the imperfect state of a science which has not yet settled points of so much importance. What are thinking men to conclude when they see medical authorities thus opposed to each other?—either that the opinion of the most eminent physicians is good for nothing, or that both parties are right—in fact, that under peculiar circumstances, these diseases are sometimes contagious and sometimes not. But it is a great misfortune that partial observers allow their minds to be tinctured with exclusive opinions, of which they become as tenacious as if these opinions could be verified by an undoubted demonstration. The consequence is, that little weight attaches to either side. It is too much the habit of all persons to look at pestilential fevers of every kind, as if contagion was the quality which peculiarly characterised them. But a very simple view of the case should convince any one that the animal *effluvia*, or morbid secretion from a diseased body, which constitutes contagion, is not necessarily a poison to all who come within its influence. Small-pox contagion itself is inoffensive to thousands. In those who have had the disease the predisposition is destroyed. There must be a strong predisposition of body to receive the contagion of any other disease; and this strong predisposition is what lays the multitude prostrate before an epidemic pestilence: so that, in some cases, an intense dose of the poison; in others, its protracted application; in others, an exhausted state of the body from defective nourishment; in others, extreme fatigue and watching, with mental depression; in others, the debility which follows a debauch; proves, one or the other, to be the exciting cause which brings this predisposition into action while the epidemic constitution, whether this depends on the air, or the body, or the season, is prevailing. It is no fanciful idea that an epidemic constitution is thus limited; for how otherwise could it happen that cholera, like influenza, requires but six or eight weeks to run its course, to become, in fact, mild and impotent, after it has raged with fury; while the Levant plague and the bilious pestilence of yellow fever take up three or four months? If cholera halts days between the first few cases, pestilential fever halts weeks. Cholera observes precisely the same law as pestilential fever, when epidemic; it is violent and fatal at the beginning, mild and harmless at the decline; and, if its contagious nature were as well marked as that of plague, we should have the not less remarkable fact, that when it was most violent, and acute, and fatal, it was least contagious, except at the decline, when, as in the plague, contagion is extinct."—Pp. 81, 82.

Of the chronological history and peculiarities of *Influenza* a very learned and full account is given by the same author. Dr Hancock divides the subject into six parts; the first devoted to a chronological history of influenza epidemics; the second to an account of the leading symptoms and their most usual variations; the third to the natural progress of the disease, and the effects of modes of treatment; the fourth to the account of the meteorological peculiarities by which different epidemics have been preceded; the fifth to the question of epidemic prevalence and that of contagious propagation; and the sixth to the consideration of those facts which indicate epidemic prevalence, or the simultaneous operation of general causes.

As the chronological sketch is very well arranged from numerous different authorities, we shall give that as a specimen of the article.

"I. We find no medical description of the epidemic catarrhal fever before the year 1510. 'It was called *coccoluche*, because the sick wore a cap close over their heads.' The symptoms of the disease, as it then occurred, nearly resembled those which it has assumed in later visitations, namely, severe pain over the eyes, sneezing, coryza, heaviness, difficulty of breathing, hoarseness, loss of strength and appetite, fever and harassing cough. Schenk says that physicians then looked upon it as a new disease. Its course seems to have been in a north-westerly direction, from Malta to Sicily, Spain, Italy, Germany, France, and Britain; and Short says that 'it attacked *at once*, and raged over all Europe, not missing a family, and scarce a person, and that none died except some children. In some it went off with a looseness; in others by sweating. *Bleeding and purging did hurt.*'

"In 1557, an epidemic of the same nature prevailed in different countries. Fonseca says that in this year it infested Asia, thence came to Constantinople, and having spread itself all over Europe, afterwards attacked America, its course being westerly. Mercatus asserts that 'before the beginning of autumn 1557, it attacked all parts of Spain *at once*, so that the greatest part of the population in that kingdom were seized with it almost on the same day.' Riverius has transmitted to us an account of this epidemic. Unlike that of 1510, it was fatal to many: in a small town near Madrid, Mantua Carpentaria, bleeding was said to be so fatal that two thousand patients died after it in September. At Alkmaer, in Holland, two hundred died of it in October.

"The catarrhal epidemic fever of 1580 was distinguished by its complication with malignant fever or plague, as related by Forestus and Sennertus. The latter speaks of its ravages at the end of summer and the beginning of autumn over all Europe; in some parts of which, as in Paris, it was the *precursor* of the plague. It was in Sicily in June, at Rome in July, in August at Venice and Constantinople, in September in Hungary and Germany, in October on all the Baltic coast, in November in Norway, in December in Denmark, Sweden, Poland, and Russia; its course being from E. and S. to W. and N. Mercatus says that it raged also in Spain, and destroyed not a few. Grand Cairo lost a prodigious multitude the same year by the plague. It is a remarkable fact, and ought not to escape our notice, that France appears to have been the only country in Europe affected that year by the plague; and it appears also to have been the first to be visited by the epidemic catarrh, its precursor; so that Baldutius even dates its origin from France.

"The influenza of 1658, of which Willis has left us an account, visited Europe and this kingdom *suddenly* in April, and after excessive heat in August was followed by a fatal epidemic fever.

"Sydenham and Etmuller have described the epidemic catarrh of 1675, which began in Germany in September, and in England in October. Malta was afflicted by the plague the same year, from which it remained free till the last severe visitation of this scourge in 1813.

"The epidemic catarrhal fever which raged during the autumn and winter of 1729, in the space of five months' time visiting almost every part of Europe, was very fatal in many large cities, such as Paris and London. Loew says that in the latter more persons died than at any one time since the plague of 1665, about one thousand being cut off weekly in September. In the beginning of winter it reached France. A few weeks after, it visited the upper part of Italy with great mortality. In February it afflicted Rome and the Rhine. Turin and Milan suffered extremely. It reached Naples in March, and after this disappeared.

"The influenza of 1732-3, is described in the second volume of the Edinburgh Medical Essays, and by Huxham; and was so far remarkable that it affected the mucous membrane of the alimentary canal as well as that of the organs of respiration. It spread over all Europe, and appeared also in America. It was first noticed about the middle of November in different parts of Germany. Edinburgh appears to have been the first place attacked in Britain, viz. on the 17th of December, and it raged at the same time in Switzerland, at Basle. It appeared at London and Flanders the first week in January; towards the middle of the same month it reached Paris, and Ireland towards the end. Cornwall and Devonshire were visited about the beginning of February; few only were attacked at Plymouth, where Huxham practised, so soon as this; but in March it prevailed on all sides. In February Leghorn was attacked, and near the end of it Naples and Madrid suffered. New England in America was invaded by the distemper about the middle of October, which travelled southward to Barbadoes, Jamaica, Mexico, and Peru, much at the same rate as it had done in Europe. It appears to have been at Paris early in the year. 'Elle se manifesta, dit de Jussieu, à la suite de brouillards fétides, plus épais que les ténèbres de l'Egypte.'

"The epidemic catarrh of 1733 was followed by those of 1741 and 1742; the first described by Haller, and the second by Sauvages and Huxham. In 1743, towards the end of April, Huxham says that it was general in England, and in the spring spread over all Europe under the name of 'influenza,' or 'grippe.' This epidemic was the *precursor* of the plague of Messina in Sicily the same year; and it was more fatal in the southern parts of Europe than in England, though it increased the deaths in London in one week to a thousand.

"The next remarkable visitation of the influenza was in 1762; and an elegant description of it is given by Sir George Baker, 'De Catarrho Epidemico anni 1762,' who records its appearance in London about the 4th of April. Razoux, a physician of Nismes, has given an account of the same disease, which was epidemic in Europe generally in the spring. It attacked Breslau at the end of February; Vienna was visited in March, and Hamburgh in April. In Venice it was more fatal than in other places. It spared, however, Paris and the greatest part of France; nor can we find any particular cause for this exemption. Nismes most probably was visited; and Webster says that 'Toulon lost one-third of its inhabitants by an epidemic in 1761.' The influenza of 1762 appeared sooner in London than in any other part of England, namely, the beginning of April. It was not observed in Edinburgh and Dublin till May; but in June it was general and severe, according to Sir G. Baker, being seen no where earlier than February nor later than July. It had prevailed in America the preceding year. It was not till July that it attacked the British sailors in the Mediterranean. It was immediately followed in London by an epidemic dysentery, which raged till November. While the influenza prevailed, the deaths in London scarcely exceeded the usual number. In Manchester they were even fewer than common; and at Norwich far more died of it than fell victims to the *more severe* influenza of 1743.

"The next epidemic catarrh, in order of time, was that noticed in London and different parts of the nation by Dr Fothergill and some of his friends in the latter end of the year 1775. It was observed also in France, Holland, and Germany, and was supposed to be more fatal in those countries than in Britain.

"The influenza of 1782 was general over England, Scotland, and Ireland, between the months of May and July inclusive. A full account of it is given in the second volume of Memoirs of the London Medical Society, by Dr R. Hamilton, which is the ground-work of the article 'Influenza' in the Edinburgh Medical and Surgical Dictionary; an account is also given in the first volume of Medical Communications by Dr Gray, compiled from papers in the British Museum, which is the basis of a like article in the Cyclopædia of Dr Rees. (See also the third volume of Transactions of the College of Physicians, London.)

"The influenza of 1782 seems to have pursued a course from the east, not very different from that of the epidemic cholera which is now (1832) displaying its ravages in Great Britain and France. It is reported to have broken out in September 1780, and to have become very general in the crew of the Atlas East Indiaman, whilst that ship was sailing from Malacca to Canton. When the ship left Malacca, there was no epidemic disease in the place; when it arrived at Canton, it was found that at the very time when they had the influenza on board the Atlas in the China seas, it had raged at Canton with as much violence as it did in London in June 1782, and with the very same symptoms. In October and November 1781 it appeared in the East Indies, and was said to have attacked the British army while it was besieging Negapatam in November 1781. Its progress is stated by Webster to have been from Siberia and Tartary westward. At Moscow it prevailed in December 1781; at Petersburgh in February 1782; and it was traced to Tobolski. It was in Denmark in the latter end of April. From the shores of the Baltic it spread to Holland and the Low Countries, and thence to England. London was said to be attacked sooner than the west and north; Ireland a few weeks later, and the south of Europe later still; for it prevailed in France in the months of June and July, in Italy in July and August, and in Portugal and Spain in August and September; seldom continuing longer than six weeks in any place.

"The influenza of the spring of 1803 afforded an occasion for collecting a great number of notices from different parts of the country on the subject of this epidemic. The London Medical Society set a laudable example by proposing a set of queries to its corresponding members in a circular letter; and the sixth volume of 'Memoirs' contains reports from nearly sixty practitioners in England, Scotland, and Ireland, as to the date of its first appearance, its symptoms, treatment, &c. in their respective neighbourhoods. Dr Beddoes also interested himself very zealously on the same occasion, and procured various testimonies from his friends and others, which, to the number of one hundred and twenty-four, are inserted in the ninth and tenth volumes of the 'London Medical and Physical Journal.' These documents contain a mass of very useful information. This epidemic was observed at Paris and in other parts of France and in Holland some weeks before it appeared in London; and Dr Bardsley says 'the same length of time was occupied in its progress from the later city to Manchester.' Its course seemed to be from S. to N. It was in Cork and Dublin before it reached the north of Ireland, immediately after a S. E. wind. An epidemic ophthalmia followed it in France, and a severe dysentery, such as had not been known for thirty years, in some parts of the United States, which it visited the same spring. It was observed to be *epidemic* in Sussex, and some of the counties in the S. W. as early as February; in Shropshire, Nottinghamshire, &c. in March; in Yorkshire and Lancashire in April; and at Sunderland in May. It was evident that there was a degree of progressive movement northward, by marking the time when it was at the height in each place; yet many of the accounts above alluded to inform us clearly that sporadic or solitary cases exhibiting the true characters of influenza, occurred in several places long before the disease became established, so as to manifest a universal tendency to that form of complaints over the country, in some cases weeks before it was quite developed. It is worthy of notice that this has been remarkably the case with the epidemic cholera. Dr Gray observes that, in 1782, a complaint, similar to the influenza, was taken notice of in some parts of the kingdom *several months* before that disorder made its progress through it.

The influenza of last year (1831,) though generally mild in its character, was almost universal; for it would seem to have prevailed in both hemispheres in the same year. Accounts have been received of its appearance in India as well as in the United States of America. In many places it has been the precursor of the epidemic cholera. About a month before the latter disease broke out in Warsaw, it prevailed in that city. It also swept over great part of England, Scotland, and Ireland, in the spring and autumn, and preceded the *milder* visitation of epidemic cholera which many parts of Great Britain experienced the same year. Late in the autumn it attacked Paris, the south of Spain, Gibraltar, and Italy, with more severity than it did the British Islands. At Rome it was said to occasion great alarm. It has certainly skipped over many countries of Europe in its march from Poland to France through England, so far as we can judge negatively from the want of official reports; but, with this exception, it has pursued a course not widely different from that of similar former epidemics, and has proved to be a true herald of the epidemic cholera in many places." —Pp. 815, 818.

The view of the kind of weather, and the meteorological changes and thermometrical variations by which different epidemics were preceded, is also very interesting. But we must be contented by referring our readers to the article generally.

Dr Hancock very properly enters into the examination of the question, whether influenza is ever propagated by contagion or not; and though most observers are now satisfied that it is in no case a disease depending on contagious principles, and that it rises too suddenly, attacks too many persons at once, passes through a community too rapidly, and disappears in a time too short to depend on anything else but very general atmospherical causes, he infers, " that it would appear that some general cause, if not originating, at least subsisting, in the atmosphere, and depending on its changes, progressive also in its movements from place to place, and from country to country, gives rise to the disease; but that it is probable that a limited propagation *also* takes place by personal intercourse, *under the influence and during the prevalence of the epidemic constitution.*"

The following are the facts and arguments which the author adduces in favour of the view of contagious propagation. Of their strength and competency we confess we do not think much; but it is better in a work like the present that both sides of a question be heard, that the authors should assume the characters of partizans and special pleaders.

"We have writers affirming that persons who have been visiting or on business in an *infected* town, have been the first to introduce the epidemic into their own town or neighbourhood; and it cannot be doubted that the members of a family and the inhabitants of a districts have often been attacked by the influenza in *succession*. Hence these things would seem to indicate that the disease was propagated by contagious transmission more than by some universal medium. But the difficulty of proving the first to be actually the case, must, in the nature of things, be very considerable; for it would appear,—and the remark applies to almost every epidemic disease,—that in many places a tendency to the epidemic has been recognized by clear indications some time *before* the peculiar combination of symptoms which characterize it have shown themselves, making the moment of actual invasion very doubtful; just as, it is well known, the epidemic imprints its own character for some time *after* upon the diseases that follow it. And though no *epidemic* disease with which we are acquainted is so sudden and simultaneous in its attacks as influenza, and therefore none more emphatically deserves the name of *epidemic*, nor more decidedly proves a universal cause; yet it is a striking fact that, with all its frequent rapidity of movement over the globe, it has in almost every country been more or less obedient to the laws which govern other epidemics, according to some *progressive* and *consecutive* operations that are as much hidden as the efficient cause of attraction. It does, in fact, mostly observe some progressive law in moving over a country and in attacking a given multitude of people, which demonstrates that, however universal may be the cause of an epidemic disease in its purest form, yet if we regard experience, the effects rarely if ever should be expected to appear without some degree of consecutive order. The difference of constitution, of age, of habits, of locality, and of other things, may be quite sufficient to account for the phenomenon of successive attack; and, indeed, it is what we might expect *a priori*. If to this we add the probability, and, indeed, necessary inference from the facts, that the cause itself is developed gradually, we shall have less difficulty in accounting for a continuous mode of attack on another principle than that of contagion."—P. 8.

In the close of this paragraph the author manifestly avails himself of a much more natural mode of explaining the occurrence of successive attacks, than by having recourse to contagion. The influence of differences in individual or family constitution, in susceptibility, and many similar causes, is too often entirely overlooked, in attempting to account for the successive attacks of epidemic diseases; and as the easiest method of solving the difficulty then appears to be found in the principle of contagion, that method is forthwith employed.

Let us see what sort of evidence, however, Dr Hancock affords for the operation of general causes in those applicable to large and numerous bodies of human beings. We find from the following extract that the chance of contagion must be very small indeed.

"Though a successive mode of propagation over a country or city is most usual, yet on some occasions the spread of influenza over a whole kingdom, within the space of a few days, has been so general as to make the propagation by means of personal intercourse quite incredible, and almost impossible. Besides this, its sudden appearance in ships at sea, which have had no intercourse with land or with other vessels for a considerable time, can hardly be explained on any other supposition than that of its atmospherical origin. Dr Anthony Fothergill assures us that 'both the epidemics of 1758 and 1775 seized whole families on the same day, often remote from one another, and without any intercourse.' Again, 'the influenzas of 1775 and 1782 seized some persons at sea, while others were attacked on shore, and that without any perceptible communication.'—'The appearance of the influenza in 1803 in England,' according to Dr Woodforde, 'was very sudden, and its attack extremely general, so that it is difficult to say in what or in how many parts of the kingdom it prevailed at first. It is probable that the disease broke out in all at or nearly the same time.'

"The following fact is very conclusive as to the operation of some general cause; for it is scarcely probable that contagion could be lurking a long time before, and then should burst forth at the same time at distant points in so remarkable a manner. Two separate fleets left the coast of England for different points of destination in the year 1782; one, under Admiral Kempenfeldt, on the 2d of May, to cruize between Brest and the Lizard; the other, under Lord Howe, on the 6th of the same month, for the Dutch coast: neither fleet had communication with any shore; and the crew of each was perfectly healthy on sailing from Spithead. But on the 29th of the month, near four weeks after, the crew of the *Goliah*, one of the ships under Kempenfeldt, was attacked with influenza, and about the same time the epidemic appeared also in the *Rippon*, under Lord Howe. The other ships of both fleets were attacked in succession. In fact, so many men of both squadrons, on these remote stations, were rendered incapable of duty, that all were obliged to return to Portsmouth about the second week in June.—Pp 8, 9.

The author afterwards adduces in the sixth division of his article the strongest facts, to show that the influenzas of 1762, 1775, 1782, 1788, 1789, and 1803, appeared so suddenly, and spread so rapidly, that they must have depended on causes of general or universal operation.

We conclude with the following extract.

" We can scarcely look over the histories of influenza without perceiving a connexion between this disease and morbid affections of the mucous surface of the stomach and intestines. Thus Huxham has recorded the frequent appearance of cholera and diarrhœa in July, September, and October, after the spring influenza of 1733. The same author describes the 'dysenteria cruenta epidemica,' which raged at Plymouth and the adjacent country, both before and after the influenza of 1743: and he adds that 'he did not know whether the former disease might not be considered a translation of the latter to the intestines; but he had observed that *epidemic dysentery* was very rarely to be met with in the spring.'

" Sir George Baker follows up his account of the epidemic catarrh of 1762 in London with a description of the epidemic dysentery which immediately succeeded it in that city; and both he and Dr Reynolds remarked that in 1775 diarrhœa sometimes followed the attack of influenza.

" Dr Hamilton states that in the neighbourhood of Newcastle-upon-Tyne, 'the influenza of 1782 was accompanied with colic, pains and cramps in the region of the abdomen and stomach, and some had purging.'

" In France, in the influenza of 1803, 'gastric irritation was one of the most frequent complications of the disorder, and appeared in some measure to constitute an essential part of it."

" Dr Bertram of Hull remarked that some of the attacks of influenza in 1803 nearly resembled *cholera morbus*, others *cynanche tonsillaris*; and he goes so far as to express 'a firm conviction of the three diseases being different types of the same disorder, and occasioned by the same cause.'

" Diarrhœa seems to have preceded, as an epidemic, the influenza of 1803, at Plymouth Dock, as in 1743 and 1788; for Dr May says that early in the year " diarrhœa and cholera were very prevalent; so nearly similar to that preceding the influenza of 1788, that to many of his friends he hazarded a pretty confident opinion of an expected return; and in this he was not deceived."

" It must be fresh in the recollection of most that the epidemic cholera, which in a milder character appeared in many parts of Great Britain last year (1831,) and is now running so fatal a career in its malignant type, was preceded by the influenza; and we know that the same herald of that formidable epidemic was seen also at Warsaw, Paris, and other places; and was lately announced even in the United States of America a short time before the cholera made its appearance in the transatlantic cities.

"These facts are collected to show that there is a closer connexion betwixt some epidemic diseases, both as to their affinity and their causes, than we commonly imagine; and that it is only by a very enlarged view of their phenomena in different countries that we can hope to improve our knowledge in this obscure branch of science."—P. 10.

The articles *Enteritis*, *Gastritis*, and *Gastro-enteritis* by Dr Stokes, may be taken together as integrant and similar parts of the same general subject.

The terms *Gastritis* and *Enteritis*, Dr Stokes restricts to designate inflammation of the mucous membrane and glands of the stomach and *ileum* respectively. He then distinguishes both into acute and chronic; considers the cause and symptoms of the former as they appear in the adult and in the infant; and directs the attention to the inflammation of the intestinal glands, and to the chronic form of *Gastritis*, as a frequent cause of dyspeptic disorders. In the course of this view he makes much use of the researches of Broussais, Abercrombie, Bright, Billard, Louis, Trousseaux and Rigaud, and Andral, and by illustrations from his own experience, presents a full and connected view of the whole subject. Into the details of this, however, it is unnecessary to enter; since we have so often, in considering the writings of the authors now mentioned, treated of different divisions of the subject, that it would inevitably produce much repetition.

The essay on *Gastro-enteritis*, though by the same author, and composed after the same authorities, presents, nevertheless, rather more novelty and originality, in this circumstance, that the author considers the disorder more directly in its connection with, and complications by, acute and chronic disorders of the brain, bronchial and pulmonary inflammation, the softening of pulmonary tubercles, or *phthisis*, and disorders in the structure and circulation of the liver.

By these various complications of *gastro-enteric* disorders, the author has given a very full and just view, and one which promises to be very useful in its practical applications.

It is nevertheless painful to observe Dr Stokes in the beginning of this article, when adverting to the ignorance prevalent on the pathological states of the alimentary tube, assigning for this among other causes, "the spread of the doctrines of Hamilton, so popular to many minds, from this, that, under the name of science was put forward an empiricism, easy in its application, though destructive in its results, and saving the trouble of thinking, and the necessity of study." This is a mode of speaking of *the doctrines of Hamilton*, as they are here termed, which will by no means be generally approved of. That the doctrines of Hamilton are a species of empiricism no one who knows the true signification of that term would scruple to admit, because the practice was necessarily founded on remedies given *experimentally*, with the hope of producing certain effects. But the peculiarity of this species of empiricism was, that it was not rash or indiscriminate, that it was suggested by accurate observation, sound reasoning, and correct physiological views, that its effects were most carefully observed, that it was continued or abandoned, repeated, or suspended or modified, solely according to the indications of these effects, and that the inferences derived from it were formed with the most rigid attention to the rules of induction. In the hands of Dr Hamilton this empirical system was always under the guidance of observation and physiological considerations; and while it was invariably beneficial, was in no instance carried to an undue or detrimental extent. That it may have been indiscriminately and excessively employed by others who observed less carefully, and prescribed more on venture, is no fault of Dr Hamilton, and is merely the natural consequence of powerful and successful remedies falling into injudicious hands.

To appreciate the exact merits of the curative method of Hamilton, it is requisite to bear in mind the prejudices then universally prevalent among practitioners against the use of purgatives. There seemed to be a general apprehension lest the most trifling doses of these agents would be productive of the most irreparable injury to the system; and hence several diseases which were certainly aggravated, if not produced, by the loaded and unhealthy state of the intestinal tube, were either incurable, or, were at all events removable only after a very long period. To deliver the profession from such a bugbear was certainly a service of some importance, and could not have been done so successfully, unless by a person of some powers of reason and observation, as well as talent for experiment.

An interesting article on *Epilepsy* by Dr Cheyne, exhibits the usual accurate observation and judicious views of that physician. Partly modifying the arrangement of Sauvages and Cullen, and partly adopting some of the distinctions of these nosologists, Dr Cheyne regards epilepsy as of two general species, the *cerebral*, or that depending on affection of the brain, and the *sympathetic*, or that depending on remote parts of the organic frame; and refers to the latter head five varieties, the *epilepsia stomachica* or *a. ventriculo*, and the *epilepsia uterina* of Sauvages, and under the name of *E. nervosa*, the *epilepsia sympathica* of the same, his *epilepsia cachectica*, under the name of *E. hepatica*, and lastly, the *epilepsia a dolore* of Delius and Sauvages.

These different varieties of epileptic disease are very well explained and illustrated by the author. But in considering the pathology of the disease, Dr Cheyne has seen reason to adopt the discouraging conclusions of Van Swieten and Esquirol, and to infer that morbid anatomy has thrown no useful light on this obscure subject. In this we confess we are somewhat disappointed; for though it may certainly not be prudent to reason and speculate on cases in which Van Swieten and Esquirol have pronounced it useless, we must say that it appears to us that these ingenious persons have been deterred not by the impracticability, but by the difficulty and complication of the task.

It is of no avail to tell us, as Esquirol has done, in the usual rapid and imposing manner of the French authors, that, from the dissections of Bonetus, Morgagni, Baillie, Greding, Meckel, Wenzel and others, we can only infer, that the same alterations which are seen in the epileptic take place in those not epileptic, as Wepfer and Lorry told us before. The dissections of Greding especially have always appeared to us to be of the utmost value; and when combined with the less numerous and varied results of Morgagni, Meckel, Baillie and Wenzel, may certainly be made to elicit useful inferences.

It is, we conceive, not the defect of morbid anatomy, but its misapplication and erroneous views of its utility, that prevents it, or has prevented it, as Esquirol asserts, from throwing useful light on the pathology of epilepsy. This is a task which morbid anatomy alone can never accomplish. That science explains in general the effects only of diseased action; and though in some instances it also unfolds the causes, and in others the pathologist is enabled, by a process of inference and reasoning, to ascend from the visible effects to the causes, it always requires much collateral evidence, and much comparison of discordant facts, to insure accurate and positive conclusions.

It is no doubt true that the same changes which have been found in the brains of epileptic persons, have been also found in the brains of those who had not exhibited epileptic paroxysms; and what is equally, or rather more important, in the brains of some epileptic persons no morbid changes have been found, and in others the fits have been removed and left no trace of disease. But the whole of this, as well as the causes and appearance of the paroxysm, merely shows that epileptic attacks depend on some temporary, morbid, and preternatural orgasm of the vascular system of the brain, to the production of which the morbid change or changes acted as a concurrent, but not an essential cause. The epileptic paroxysm is evidently a dynamic disorder entirely, connected with some of those undulations or oscillations to which the vascular system of the human frame, and especially that of the brain, is periodically liable, and which, though incapable of being produced by the operation of any single cause alone, may be readily developed by the concurrent action of two or more. The existence of these temporary and periodical oscillations it is impossible to doubt; because that would be to question the vital properties and living functions of the animal body. We see them daily in the nervous, the delicate, the dyspeptic, and the plethoric; we see them every four weeks in most females; we see them very often in those who with the male physical organization, possess the *varium et mutabile* of the moral constitution, so unjustly ascribed to the female alone; and we see them in almost all persons, however energetic the animal construction may be, under the temporary dominion of sickness, indisposition, and mental disquietude. It is surely not so difficult or so irreconcilable with the phenomena of the motions of living bodies, to comprehend, that in such circumstances the addition of a very slight temporary cause, or the presence of a permanent one, which had been hitherto inert and without effect, is perfectly adequate to produce the derangement of sensation, consciousness, and motion observed in the epileptic paroxysm.

Let us also consider for a moment what is the epileptic attack. Is it not merely an assemblage and train of symptoms indicating a certain state of the cerebro-meningeal circulation? Does it not occur in that orgasm of the system preceding the eruption of small pox, during dentition, after excessive hemorrhage in certain subjects, in the course of apoplectic attacks, in others, in the fits of ague, and in the course of fever? Are not these circumstances sufficient to show that the epileptic attack is connected with some temporary undulation or orgasm in the cerebro-meningeal capillaries. It may be quite proper to allow epilepsy to retain its place, as an individual disorder in the nosological list; but in so doing, we respectfully submit, that unless it is associated with those temporary morbid states of the general and cerebro-meningeal circulation, we are in great hazard of allowing it to usurp a place to which, as a symptom or assemblage of symptoms, it is not entitled. The only true antidote to this, we conceive, is not, as Van Swieten and Esquirol advise, to reject morbid anatomy as an unprofitable and unproductive source of information on this subject, but to cultivate it with the distinct understanding, that it can unfold only effects of disease in such instances, or at most one of many concurrent causes. To render it really useful, it must be combined with careful observation of symptoms in the living body, and modified by subsequent reasoning on the exact influence of the morbid lesions in the dead.

If any thing could confirm the justice of these views, it must be found in the modes of treatment under which recoveries from epilepsy have taken place. These methods are sometimes so inert, so absurd, so ludicrous, and so superstitious, that it is impossible to conceive they can have had any effect, unless on the fancy of the patient. Of these Dr Cheyne gives an extremely interesting and useful sketch, from which we shall select some specimens.

On the influence of hope on that class of persons of whom it may be said with Gray, "Gay hope is their's by fancy fed," we give the following.

"When an epileptic patient is placed under the care of a confident empiric, or of a physician who is in great repute, the disease will often be suspended for a considerable time, and to the eye of a sanguine person appear cured; while on the other hand, after a long suspension, when the disease returns, such disappointment is produced as to fill the patient with the gloom of despair, a state of mind which would seem to renew the energy of those causes upon which the fits depend, and hence they occur at shorter intervals and with greater violence than ever.

"The empiric, well knowing how much depends on confidence, has various methods of fixing unstable minds; he cajoles and blusters, and with equal power of fulfilment he promises and threatens; he knows that he may draw upon the imagination of his patient to any amount, and that his draft will be honoured; that the mystery with which he clothes all his measures is often the cause of his success, and hence he provides his own remedies, and invests them with supposititious activity. Give a patient a few grains of liquorice-powder, and let him be told that he has just swallowed part of the skull of a malefactor, (which once was considered a sovereign remedy for epilepsy,) or that this powder contains a substance of which, according to the German dreamer, a thousandth part of a grain is the proper dose, and you often may thus cure a disease which is anything but imaginary. In Ireland, epilepsy has often been cured by the priest, who is supposed by the credulous of his own communion to be gifted with the power of working miracles of healing, a power claimed for the Roman Catholic Church, even by her most enlightened members. Uneducated adherents of the Church of England, and even the Presbyterian, both in such matters equally credulous, often successfully apply to the same functionary to be cured of fits. He sometimes begins the curative process by giving two or three very powerful emetics; but he chiefly relies upon obtaining dominion over his patient's mind, an art in which he is often eminently skilled, and which he is the better able to practise, as probably he implicitly believes in his own supernatural power. If the epileptic be a Protestant, the priest signifies that the prayers which he offers up, the virtue with which he is endowed, are his, only for the benefit of the members of his own church; the patient, overpersuaded probably by his friends, goes *to mass with* reluctance, as a temporary expedient to qualify him for the intercession of his spiritual physician, by which means the latter gains an advantage over the disease. A struggle has taken place in the patient's mind, in which conscience is laid prostrate; a great and a permanent moral impression is made, which, especially if the disease is nervous epilepsy, sometimes ends in the fits being suspended, and the patient becoming a devoted adherent of the Church of Rome, to whose interests, by his belief in the superhuman power of her clergy exercised in his behalf, he becomes more attached than if he had been born within her pale; and confidence in the agency through which he has obtained relief, we doubt not, sometimes renders it permanent. Such is the nature of modern miracles, and such the principles by which even Protestant clergymen have been enabled to take a part in a farce equally disgusting to all who are able to distinguish between true religion and superstition.

" A successful empiric, who by various practices had for a long time sustained the hopes of a young lady who was afterwards under our care, one day observed her, while under a sense of faintness, having recourse to sal volatile; this he eagerly snatched from her, and throwing up the sash he violently dashed the vial upon the pavement, at the same time declaring, with well affected displeasure, that if he ever heard that she had any medicinal substance in her possession which was not given to her by himself, he would never see her again, as his remedies were so delicately combined, that, by admixture with any other drug, their efficacy would be completely destroyed."—Pp. 92–93.

We afterwards meet with a still more graphic sketch, which is useful, both pathologically and practically.

" Having paid some attention to the proceedings of empirics, foreign and indigenous, regular and irregular, we venture to say that we may sometimes be taught by them useful lessons; and we ought not to decline assistance even from such sources: in this case the end will justify the means employed. There was some years ago, in Dublin, an outlandish person, said to be from Germany—a high German doctor, although by some it was alleged that he was a native of Ireland, and born in the *kingdom* of Kerry—who professed to cure epilepsy. His appearance was such as to strike a vulgar mind with awe, while one who had pleasure in the grotesque or fantastical, or a taste for the antique, could scarcely help being amused by the public exhibition of an individual who apparently belonged to an earlier and more rude and credulous age of the world. With measured pace and serious aspect he paraded those parts of the city which are most frequented, displaying what the refined taste of our youth has rendered no longer a novelty—a beard like that of an adult goat; behind him, almost in lock-step, there marched a tall fellow in a gaudy livery—light blue, abundantly tricked out with silver lace. Jan Stein, the shrewd observer of water-doctors and mountebanks, never painted a more characteristic pair than the solemn leech, whom we have slightly sketched, and his self-important follower. At first, trade was brisk with this adventurer; but he soon left Ireland, having discovered, to borrow an illustration from the agriculturist, that ground made to yield too rich a crop is thereby soon impoverished; and probably he also found that in no community is there a keener perception of the ludicrous or a juster estimate of character than among the more respectable part of the inhabitants of Dublin. He held some of the opinions of the Nazarite, for he told his patients that they must not cut their hair, 'in which,' he generally added, 'lay the strength of the body,' and he inhibited the use of wine and all intoxicating liquors, a restriction not calculated to advance his reputation in Ireland. But to have introduced this original to the reader would be mere impertinence, were it not that there was a point in the regimen which he prescribed worthy of adoption. He ordered his patients to walk, those who were not enfeebled, twelve, fifteen, or even twenty miles a day. They were to begin by walking a moderate distance, and they were gradually to extend their walk according to their ability. In some of his patients a great improvement took place, both with respect to digestion and muscular strength, and this was so apparent in a short time, that ever since this luminary shone upon the metropolis of Ireland, most of our patients, affected with epilepsy, have, by our advice, been peripatetics. We recommend those who are subject to this disease to walk as far as they can without much fatigue. We do not prescribe one long walk, but several in the course of the day of moderate length. Delicate females have thus been trained to walk eight or ten miles, by making them sit or recline when they were fatigued, and again move on when rested. Females of the hysteric diathesis, who are liable to epilepsy, must pass as much of their time as possible *sub dio*, driving, boating, or even sitting in a sheltered place, if they are unable to walk without being fatigued, muscular exertion being generally hurtful to them."—P. 94.

The article on *Gastric Fever* by the same author, will be read with much interest. We subjoin a few extracts, in order to communicate some idea of the nature of the disorder, and of the manner in which the subject is treated.

"The following may be considered as the most remarkable features of gastric fever. General uneasiness and restlessness, or, as the patient is apt to describe his condition, 'complete wretchedness;' a most unpleasant state of the mouth—a taste which, like the general unhappiness, cannot be described, but is intolerable; heat, often tenderness, or even pain in the epigastrium, and redness of the fauces, which often ends in aphthous state of that surface."—P. 215.

"In successive seasons we may remark a considerable variety in the symptoms of the fever; for example, the state of the surface of the body varies considerably. For two or three years, from 1827 to 1829, there was an entire absence of eruption of the skin, with the exception of the white miliary rash, which in many patients was to be found in the hollow above and below the clavicle, and in the sides of the thorax over the false ribs. This rash, pro-

-bably, belongs to the gastric more than to any other species of fever; we do not include rheumatic fever, whether common or puerperal, which has its own miliary rash, but limit this observation to epidemic fevers. During the first quarter of the present century, the miliary eruption was very rare; with a slight exception during all that time, the miliary rash was nearly absent. During the last five, but more especially during the last three years, the miliary vesicle has been very common. During the winter of 1830, if the red miliary rash be papulæ, with minute suppurating heads, that eruption was observed; about the same time petechial eruptions reappeared (after an absence of several years) as symptomatic of the fever under consideration: the petechiæ, however, were rather clear, diffused maculæ than the florid or purple stigmata, to which, perhaps, the term ought to be limited.

"No precise duration can be assigned to gastric fever. We have seen it observe a septenary period, although obscurely. Sometimes it extends not beyond one week; we have known it exist for three months, but its course is sometimes even much more extended. It is exceedingly under the influence of regimen. When pursuing its course silently and unobserved, it may be roused so as to be attended with both suffering and great danger by stimulating ingesta, fatigue, or anxiety. In like manner, also, relapses are very often produced.

"There is much obscurity with respect to the infectiousness of gastric fever. To us it has appeared that this species of fever is sometimes infectious and sometimes not. For several years the fever appeared in families only in solitary instances, or if more than one were affected, they were seized nearly at the same time; but it did not extend so as to lead us to think that it propagated itself. We were unable to assign the cause of the disease further than that we observed, in several houses in which our patients lay, that fetor which is discoverable when a sewer is choked, and in some instances upon inquiry it was found that the sewer leading from the house had been improperly constructed and neglected. In one patient the disease commenced in the middle of the Atlantic Ocean, and a fortnight before he reached land. But it would not be safe to affirm that in the winter of 1830 the fever did not possess an infectious property; in virtue of which, and exclusive of every endemic influence, it spread through families. Thus the family of a gentleman of fortune, part of them from England and part from Ireland, met in the latter end of autumn in a large mansion in the most airy part of the city of Dublin. One of the young people from the county of Cork, who had been indisposed for several weeks, was obliged to betake himself to bed shortly after his arrival; then one of his sisters fell ill, then a second; then a footman who had attended his young master; then a housemaid; then a third sister; then a brother; then a fourth sister; and lastly, a fifth and sixth sister, both of whom had come from England during the confinement of the first patient. These individuals were sickening in succession during a period of upwards of three months, and the cases differed only in severity. One of the patients, the footman, died, and the eldest of the young ladies did not require to go to bed; yet were the symptoms of the same kind in all these cases. Many instances of the extension of this fever in families occurred within our observation during the winter of 1830 and 1831, which, although not so conclusive as that just related, induced us to think that gastric fever is sometimes an infectious disease.

"This disease depends upon an excited state of the stomach and intestines, which would seem to have been inflamed; but this state is by no means identical with common inflammation. After death, the mucous membrane of the stomach is found thickened, unusually vascular, in many places of a bright or deep red colour, sometimes with blood effused underneath; the vascularity of this membrane is often rather that which would indicate congestion in the veins than in the arteries. There are, however, cases in which ulceration and even perforation of all the coats of the intestines have taken place."—P. 217.

The subject of ***Feigned Diseases***, which is ably treated by the united skill of Dr Forbes and Dr Scott, and of our experienced contributor Mr Marshall, has been so often brought before the readers of this Journal by the latter gentleman, and in our accounts of the writings of Mr Copland Hutchison and Dr Cheyne, that it must be quite superfluous to say more on the subject.

The articles ***Erysipelas***, ***Exanthemata***, ***Fever***, ***Continued Fever***, and great part of that of ***Inflammation***, are by Dr Tweedie, one of the Editors.

The first exhibits a just view of the essential points in the history, etiology, and treatment of the various forms of *Erysipelas*, whether sporadic or epidemic. The second is necessarily short and general. The article on *Fever* is extremely elaborate, and exhibits a very excellent view of the symptoms, pathology, and most approved treatment of that disease.

On this subject, the long and extensive experience of Dr Tweedie enables him to speak with ease and confidence; and while he has studied to render available the researches of many different authors on the symptoms, modifications, and morbid anatomy of fever, by giving his own experience and that of several friends in that disease, as it occurs in the metropolis, he has produced a monograph on fever in the towns of Great Britain, which we venture to say is at present the most complete extant in this country.

We have so often, however, had occasion to consider various divisions of the subject, especially that of the morbid anatomy of late years in the writings of Andral, Bright, Louis, and others, and more especially the subject itself in the work of Dr Tweedie, that we feel we cannot justly resume it. We must therefore be satisfied with a general but strong recommendation of the article to the reader, whose perusal of it will be rewarded with much valuable information.

The articles *Intermittent Fever*, *Remittent Fever*, and *Hectic Fever*, *Hereditary Transmission of Diseases* and *Infection*, are written by Dr Joseph Brown. All these subjects are treated with great talent, and show the judgment as well as knowledge of the author. The account of remittent fever is very ably delivered; and the author has distinguished the shades of variety in different seasons and climates with the pencil of an accurate observer.

Of *Puerperal Fever*, a very full and interesting account is given by Dr Lee, whose correct observations and pathological researches on this subject we have had occasion already to bring before the readers of this Journal.

The course of our survey leads us to an elaborate article, on that most complicated and uncertain of all subjects, *Yellow Fever*, by Dr Gillkrest. Though in this article there is rather too much detail and vagueness in the collection of facts, and too strong and evident a bias to one side, with the introduction of certain matters not altogether fitted for such a work, there is still a great deal of interesting information. It has assumed more the character of an essay on the origin and causes of yellow fever, and especially on the question of its contagiousness, than on the nosography, pathology, and treatment of that disease.

The articles *Gastrodynia* and *Gout*, by Dr Barlow, require some notice.

The former of these complaints that gentleman considers as a spasmodic pain resulting from the presence of offending mucus, and the consequent efforts of the stomach to get rid of it. The considerations in proof of this conclusion are the following.

" So obviously spasmodic is the pain of gastrodynia, that the real nature of the disease being unsuspected, it is not surprising that it should be regarded as essentially spasmodic, or that antispasmodic remedies should have been trusted too for its relief. The alleviation of pain, too, obtained by stimulants and narcotics was well calculated to confirm the prevailing notions, and establish the practice founded on them as the most judicious that could be employed. Yet admitting the existence of spasm, it surely merited inquiry why this spasm should occur, and what causes could excite it. That the muscular coat of the stomach should be effected to this extent by any primary depravation of its own fibres was at least not probable, the supposition being inconsistent with the general state of health, which, in the outset at least of the disease, persons affected with gastrodynia ordinarily display. Some special irritation ought to have been suspected, and had this been sought in the condition of the mucous membrane of the stomach, and of its secretions, it could not long have eluded detection.

" That in gastrodynia the mucous secretions of the stomach are redundant and unhealthy is sufficiently demonstrable. If emetics be given, this mucus is copiously discharged, of a quality to show that it was not of recent formation. Instead of being fluid and pellucid, it is dense, membranous, and opaque, unlike in all respects to that which a healthy stomach discharges on the operation of an emetic. The difficulty, too, which the stomach experiences in detaching and expelling it is proportionally great, and the effort is oftentimes severe. The stools also are loaded with mucus, to which a corresponding state of the mucous membrane of the intestines no doubt contributes. The presence of this mucus evinces a previous excitement of the membrane secreting it, and in this irritation we may reasonably conceive the primary disease to exist. It is only, however, when the mucus thus formed accumulates and oppresses the stomach, that the spasmodic pain occurs; and when the foregoing facts are considered, in conjunction with the relief which suitable evacuants afford, it is difficult to resist the conclusion that the pain arises from a contractile effort of the stomach to detach and expel the offending matter. This view may be deemed conjectural, and in some respect it is so, resting for its truth rather on inference than demonstration; for as gastrodynia, at least in its earlier stages, does not destroy life, necroscopic observation, even if it could detect such morbid condition, cannot be referred to in proof of the lesions thus supposed. Yet it is a rational conjecture, and fully supported by all that we know both of the physiological nature of the parts concerned, of the phenomena of the disease, and of the effects of medical treatment. But we are not without direct evidences of the morbid condition of the mucous membrane here inferred, although they are not connected with the disease under consideration so as to make them available for directly illustrating it. All pathological anatomists who have investigated minutely the lesions of the gastro-intestinal mucous membrane, bear ample testimony both to the frequency of vascular congestion, and to the abundant mucus connected with it. In respect of the latter, Andral says, ' on opening dead bodies one is sometimes struck with the prodigious quantity of mucus on the internal surface of the stomach and intestines.' Again he remarks, ' we find vomiting produced by all possible degrees of irritation of the gastric mucous membrane, which cause the patient to throw up food and drink, or else the bile which had previously been attracted by the irritation of the stomach. In other cases the matter vomited consists of blood exuded by the irritated mucous membrane, or of mucus secreted in superabundant quantity, which last by accumulating becomes a kind of foreign body, and produces by its presence secondary irritation more considerable than that to which it owed its existence.' The vascular congestion has been distinguished as existing in the capillaries, in the larger vessels leading to them, or in both. The hyperæmia of the capillaries is regarded as arising exclusively from irritation; and as these pervade the mucous follicles, and are in fact the source from whence mucus is secreted, there seems to be little difficulty in perceiving how irritation must almost of necessity beget an increased secretion of mucus.

"If then, as appears, irritation occasions increased secretion of mucus, and if this mucus is capable of accumulating and of becoming a kind of foreign body, producing by its presence a secondary irritation more considerable than that to which it owed its existence, we have the elements of that pathology which long and patient observation of the effects of medical treatment has led us to assign to gastrodynia. What the precise affection is to which French practitioners give the name of 'embarras gastrique' we are not aware, but many circumstances in the following extract from Andral shew that it is nearly allied to that morbid condition of stomach which prevails in gastrodynia, and of which spasmodic pain is only a contingent symptom."—Pp. 328, 329.

From these facts he deduces the following pathological references and therapeutic rules.

"From the foregoing discussion it will, we think, be admitted that the researches of pathological anatomy are at least not opposed to that pathology of gastrodynia which assigns the spasmodic pain to the presence of offending mucus, and the efforts of the stomach to get rid of it. Irritation is no doubt the primary affection that leads to increased secretion of mucus, but it is to the secondary irritation caused by this mucus when redundant and accumulated, and to the efforts which the stomach thus exerted makes to throw off into its cavity what offends it, that the peculiar pain of gastrodynia must be referred. The spasmodic nature of these efforts accounts for the alleviation of pain produced by opium and stimulants, and the cause not being thus removed, we at once understand why such relief is but transient and ineffectual. The perfect relief desirable from suitable evacuants, without any aid whatever being required from narcotics, proves unequivocally how much more concerned the offending matter is in causing the pain, than is the muscular coat of the stomach which this matter so grievously disturbs, and which needs only to be freed from the disturbance to return at once to healthful quiescence, and, if the primary irritation have ceased to operate, to that ordinary exercise of functions which in health is so tranquil as not to be a subject even of consciousness.

"On these principles, then, the cure of gastrodynia requires that the mucous membrane be freed from the redundant secretion with which it is loaded and oppressed, and that a healthful state of the secreting membrane be established so as to guard against renewed accumulation. And here it may be remarked that accomplishing the former purpose ministers to the latter; for when the accumulated mucus is dislodged by suitable evacuants, not only is a direct source of irritation removed, but the secreting organs are restored to a more effective exercise of their functions, by which the primary irritation, and the congestion consequent to it, are best and most effectually relieved. The effect of irritation is congestion of blood-vessels with hyperæmia of the capillaries, and these beget increased secretion from the mucous follicles by which the overcharged vessels are unloaded, and the natural cure of the disease effected. When these conditions and natural changes are clearly understood, the treatment of the disease becomes simple in the extreme; and if the success of others in treating the malady on the principles here inculcated but equal what the writer of this essay almost daily witnesses, he will have little apprehension either of the pathology here advanced being rejected, or of the practice enjoined being condemned."—P. 329.

The subject of *Gout* is treated by the same gentleman in the most able and intelligent manner; and the author has by an extended view of the different circumstances of the organic system which concur to the production of this painful and unmanageable disease, exhibited one of the best accounts of its pathology and treatment extant.

It cannot fail to be known to the readers of this Journal, that Dr Barlow has already directed the attention of the profession to the previous states of the human frame, manifested by the fulness, overloaded, and oppressed state of the vascular system; and that he has also laboured to show, that unless these states be removed, and their recurrence counteracted, it is in vain to think of attempting to cure gout on rational principles. These views, which were very minutely developed in the author's treatise on the Medicinal Efficacy of the Bath waters,* Dr Barlow reproduces in part in the introductory observations of the present article. The different kinds of *plethora* maintained by Dr Barlow, in imitation of the pathologists of the Stahlian school, but more accurately defined than by these theorists, and which correspond to various degrees of the state denominated determination by Dr C. Parry, or at least give rise to that state, are doubtless perfectly real; and though perhaps it may be doubted whether they in truth imply an absolute increase in quantity of the contents of the vascular system, or merely a relative change in distribution, or at least in the equality of distribution,—it is still certain that some state of the vascular system exists in those persons liable to gout, previous to the actual attack of the disease, and in consequence of which an acute attack is, on the application of a cause otherwise slight, immediately induced. These views will be more completely understood in the following passages.

"When the latter, viz. the increased action, consequent on the overloaded and oppressed state of the circulation, attains its full activity, it constitutes what we call fever or inflammation, and any accident may determine the part which is to suffer most, and the function which is to be most depraved. When this plethoric and inflammatory state arises in a gouty habit, the result is an accession of the disease.

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* Edin. Med. and Surg. Journal, Vol. xix. p. 305.

"A remarkable peculiarity of gouty accession is, that the supervention of the local inflammation gives relief to the constitutional disturbance, and that, having effected this, it quickly and spontaneously subsides, at least in the earlier attacks, leaving the part so lately the seat of formidable derangement, somewhat weakened indeed, but otherwise in perfect health. The dyspeptic derangements connected with gout are no doubt traceable in a great degree to the luxurious living and consequent irritation of stomach habitual with those who chiefly suffer from this disease. But this is not their sole cause, for independently of the various excitements to which the stomach is subjected, the direct effect of plethora is to induce a congestive state of the capillaries of the mucous membrane of both stomach and intestines, and an increase of its appropriate secretions,—a condition which is the fruitful parent of gastric and intestinal maladies of various kinds. In the absolute plethora of robust habits, especially when the gastro-intestinal membrane is excited by full living and stimulants, this increased secretion of mucus in the stomach and intestines is considerable, and its production is readily accounted for. The efficient cause seems to be excitement of the secretory vessels by determination of blood to the capillaries, and by the blood possessing, from the redundancy of nutritive matter, more stimulant properties; the end,—increased appropriation of the nutritive matter of the blood, and consequent relief to the overloaded circulation from that redundancy which oppresses and disturbs it.

"In the less vigorous and more temperate a correspondent state arises, when from diminished appropriation of blood, through sedentary life, inactive habits, or any other cause, the relative quantity of nutritive matter becomes greater than can be healthfully disposed of. And this serves to explain how a state of plethora and of febrile tendency so often occurs even in habits naturally spare, and where no obvious intemperance has been practised. Yet even in these the evidences of a plethoric state are readily discernible, and at an early period, if the phenomena which indicate it are rightly understood; and the effects, as displayed in the gastric and intestinal secretions, are in them even more signal than those which positive plethora usually displays, the morbid condition of the mucous membrane being generally of longer continuance and more confirmed ere attention is directed to it. These effects, though modified, are essentially the same in both, and require a similar treatment; this differing in degree only according to the different powers of the constitution so affected, and being modified only by the state of the mucous membrane, and the greater or less time during which the congestion has been suffered to endure."—Pp. 359, 360.

The pathological principles thus established are made to form the basis of a judicious system of treatment, in which Dr Barlow proposes first to subdue the inflammatory symptoms actually existing, then to remove the state of *plethora*, absolute or relative, and to prevent its recurrence, and lastly, to regulate the *ingesta* and *egesta* by means of diet, temperance, exercise, and other means, so as to prevent excrementitial *plethora*, and the tendency to the recurrence of paroxysms.

We pass next to an intelligent article on *Headach, (Cephalalgia)* by Dr Burder.

This term, it is well known, has been employed by Aretaeus the Cappadocian, Cælius Aurelianus, Alexander of Tralles, Paul of Ægina, and others of different sects of antiquity, to designate symptomatically the presence of pain, more or less intense, of various regions of the head, enduring for some hours or a day or two, but rarely longer; while, if it endured longer than this, and was more violent and tensive, or was constant, it was denominated *Cephalæa* by the same authors. It is not unimportant to remark, that Alexander of Tralles, one of the most acute and rational of the methodic sect, ascribes *Cephalæa* in general to inflammation of the pericranium, or of the cerebral membranes, or at least congestion *(emphraxis)* of the latter. (Lib. I. xl.)

Both terms were afterwards adopted by Sennert, Nicolaus Piso, Baillou, Sauvages, Lieutaud and Tissot, with the same restrictions in signification; that of *Cephalalgia* was retained as a disease by Willis and many others; and they have been very generally adopted by physicians after the examples of the authorities now mentioned. It is quite undeniable that the circumstance of pain of the head,—a phenomenon which takes place in many different diseases and states of the system, cannot be regarded by any one who is accustomed to reflect on the pathological cause of disorders, in any other light than as a mere symptom; and on this ground, doubtless, Cullen, under the influence of the severe but salutary system of philosophical distinction which he established, thought it right to exclude both *Cephalalgia* and *Cephalæa* from the list of primary diseases.

There is, however, only one way in which practical experience can bend to theoretical and scholastic distinctions; and that is by rendering the knowledge of individual cases so complete and so accurate, that it becomes easy in any given case to discard symptoms entirely in nomenclature, or to associate them so exactly with their essential causes, as to designate each disease from its pathological or organic cause alone. This degree of perfection, however, pathology had not attained in the time of Cullen; and though very considerable efforts have been made since the time of that original observer, to accomplish such a consummation, the physician is every day taught to feel that it is far from complete.

Impressed with the reality of these difficulties, no doubt, Borsieri, Darwin, and Joseph Frank found it impossible to reject from a complete classification of diseases headach, whether of the temporary or the chronic description; and we find accordingly, that these authors have adhered to the common practice of ancient and modern physicians. It is scarcely necessary, however, and, at least, we do not think it judicious, to defend this practice by the importance with which Fothergill and Warren, and some other authors, have laboured to invest the form of the complaint denominated *sick-headach*, which had been shown long before by the indefatigable Robert Whytt, to be a symptom and part of dyspeptic, arthritic, hypochondriac, or hysteric disorders, and which even Tissot willingly admitted to belong to this head. It is preferable, we conceive, to admit the propriety of giving a separate place to this complaint, on the sole and reasonable ground, that in practice the several varieties of headach cannot be always traced to the same pathological cause, or to any certain pathological cause at all.

The present author, admitting fully the dependence of the state of the textures of which the head consists, on the condition of other parts of the system, and especially on that of the stomach, liver, the intestinal tube, and the womb, properly contends, nevertheless, that headach, severe and enduring, may arise and continue, or after remission, recur, when the organs now mentioned are all in the most obvious healthy state, and consequently must take place in consequence of some disorder or excited state of the vessels of the sensorium itself. But independent of this peculiarity, it must be kept in mind, he further contends, that not only may a common cause affect the head and the stomach, but the long-continued, or often repeated, irritation of a disordered stomach, may to all appearance excite in certain constitutions local disorder of some of the tissues and organs composing the head.

Rejecting the ancient distinction of headach into acute or temporary, or *cephalalgia*, and dull, chronic, and enduring, or *cephalæa*, Dr Burder regards the former term as sufficiently characteristic and comprehensive for all practical purposes; and of this he presents six species;—1. the muscular; 2. periosteal; 3. congestive; 4. organic; 5. dyspeptic, or the sick-headach of Fothergill and Warren; and 6. the periodical. Some defects in this division, which perhaps is not quite so logical as might have been expected, it would be easy to point out; but the descriptions appear to accord reasonably well with the distinctions, and to be readily susceptible of practical application in treatment; and we therefore refrain from minute criticism.

The two first varieties are easily understood from their specific names. The second is important, in so far as the author represents it to be occasionally induced by long-continued or often-repeated cerebral or cerebro-meningeal excitement from moral causes, after which the local disorder thus induced reacts on the cerebro-meningeal vessels, and thus is enabled to convert a temporary into a permanent disease. In illustration of this, the author details the following case.

> " A gentleman of a susceptible constitution, who had long been subject to occasional attacks of dyspeptic headach, and had frequently suffered from mental application during a long and laborious course of study, was thrown at once into the onerous duties of a large public institution. Much pain and excitement of head ensued. General and local bleeding, mercurial purgatives, antimony, low diet, &c. were considered necessary. The symptoms subsided considerably, but the brain and nervous system remained in a state of extreme susceptibility. On some recurrence of pain, it was judged needful to shave the head, which happened to be done under circumstances of great exhaustion on a cold wet evening. The ordinary covering of a thin night-cap was alone worn during the night. On awaking from sleep, a severe constrictive pain was felt over the whole head, attended with heat and tenderness of the scalp, throbbing of the temporal arteries, considerable cerebral excitement, and vomiting. In truth, an external periosteal disease was thus engrafted upon a head previously suffering from high and continued excitement. After a few days, the more superficial tenderness subsided, but the periosteal affection proved exceedingly intractable. In this case it seems probable that the frequent occurrence of sympathetic headach, aided by the excitement attendant on long-continued study, had induced an undue degree of vascularity and of nervous susceptibility in the head generally; while the remarkable prostration of vital power consequent upon the depletory measures employed, served to increase the nervous susceptibility, and thus concurred to form that twofold predisposition of which we have before spoken, and without which, we apprehend, the subsequent exposure to cold and humidity would have been insufficient to excite this peculiar periosteal cephalalgia, although it might have produced an ordinary rheumatic affection of the scalp. So exquisitely sensitive does the pericranium remain in these cases, so readily affected by every exposure to humidity or sudden reduction of temperature, and so apt to participate in every occasional excitement of the brain, that one attack of the complaint has scarcely time to subside before some fresh exposure gives rise to a decided augmentation of disease."—P. 381.

To the same head the author also refers *periostitis* of the *cranium*,—a disorder which has been generally classed under the head of *cephalæa*, but which it is certainly better to refer at once to the affected tissue.

The congestive headach is chiefly that which, taking place as represented by the author, in three classes of subjects, the plethoric, the delicate and irritable, and the feeble and leucophlegmatic, is in all probability connected with an irritable and enfeebled state of the cerebro-meningeal capillaries, and consequently an irregular state of the distribution of their contents, and thereby inducing morbid accumulation.

The organic and dyspeptic forms are sufficiently explained by their denominations. The periodic is that resulting in general from the operation of *malaria*, and connected with the presence of an aguish disposition.

The whole article is written with ability, and with much practical knowledge of the subject.

A good article on *Hæmoptysis*, by Dr Robert Law of Dublin, deserves some notice.

Dr Law properly resorts to the anatomical distribution of blood-vessels in the lungs, in order to explain the mechanism of pulmonary hemorrhage, and represents every cause which deranges either the general circulation or that of the lungs as competent to induce this hemorrhage. He then proceeds to explain the influence of derangements of the general circulation, and more particularly that of disease of the left side of the heart, in inducing pulmonary apoplexy, in the following manner.

"We are now prepared to understand a circumstance to which we shall have occasion to advert when we come to speak more particularly on the subject of pulmonary apoplexy. Although this affection generally consists in the extravasation of blood into the parenchyma of the organ, and of hemoptysis more or less extensive at the same time; still this latter phenomenon may be altogether absent, and the hemorrhagic engorgement (which is really the essence of the disease) alone be present. In fact, we regard the addition of the hemoptysis as a mere accident, though a measure of the intensity of the cause which has given rise to the hemorrhagic engorgement; and we readily account for its frequency by the facility with which an injection is found to pass from the pulmonary into the bronchial artery. The communication which we observed to exist between the pulmonary vein and pulmonary and bronchial arteries, furnishes us with the *rationale* of hemoptysis dependent upon particular lesions affecting the left side of the heart. Thus, from a narrowing of the communication between the left auricle and ventricle, the pulmonary vein is *prevented* emptying its blood into the auricle; and as it is the channel into which the pulmonary and bronchial arteries empty their contents, the effects of its congestion are necessarily felt in these arteries. Besides, the remora of the blood in the lungs opposes a resistance to the efforts of the right ventricle to drive its blood through the pulmonary artery and lungs, and, demanding increased efforts of this ventricle, occasions its contents to be thrown with unusual force into the minuter vessels of the pulmonary artery, and the communicating minute branches of the bronchial artery: it is in this way that we explain the frequent hemoptysis in this particular lesion of the heart. From the foregoing observations it is obvious that the blood-vessels of the lungs form a circle; and that hemoptysis may result from derangement of the circulation affecting any part of it."—P. 401.

Dr Law afterwards proceeds to consider the connection between hemoptysis and actual lesion of the tissue of the lungs, as induration, tubercular deposition, &c.; and after, perhaps, more discussion than the subject demanded, comes to the conclusion which has been so generally maintained, that hemoptysis is very often a consequence of the previous formation and existence of tubercles in the pulmonic tissue.

He then considers the sources from which the blood may proceed in these cases, and represents them to be either the bronchial membrane, a tubercular excavation, or the pulmonic tissue or *parenchyma*.

This mode of examining his subject leads him to consider, in speaking of the treatment, the best mode of treating phthisis, especially when connected with, or giving rise to hemoptysis. And here he takes occasion to condemn, as all good physicians do, the unlimited and indiscriminate use of the depletory system, and to recommend a more tonic and stimulating mode of management. In doing so, however, we regret to observe, that he adduces an authority which must be regarded as inadequate, and the example of which would certainly be unsafe. The following observations show the author's mode of thinking on this subject.

"We would here express our decided conviction that phthisis, of which hemoptysis is so frequent a symptom, would be treated with much more success if physicians were not continually haunted with the apprehension of exciting or keeping up inflammation; a feeling which, within due limits, should ever be present, but still when pushed too far, and acted upon too rigorously, it deprives the system of its remaining stamina, and unfits it for bearing the exhausting effects of a wasting disease. A gentleman in Scotland (Dr Stewart), who has now ceased to be a member of the medical profession, long since ventured to deviate from the routine of practice in this disease, and pursued a mode of treatment which has had most encouraging success: the principle of this treatment was to strengthen the constitution. He argued, that when the tubercles softened and the expectoration became purulent, the treatment should be the same as that required by the formation of matter in other parts of the body, when we have no other view than that of supporting the system. To fulfil this intention he treated the disease with tonic medicines cautiously exhibited, but placed his chief reliance upon cold bathing, exercise, and nourishing diet. His plan with respect to cold bathing consisted in making the patient sponge the entire body in the morning, and the neck, chest, and shoulders at night, with tepid vinegar and water, whose temperature was reduced each day till it was quite cold: this sponging was followed by rubbing for half an hour with flannels, and then with a flesh-brush. By degrees, as the feverishness subsided, the vinegar was laid aside. This was a preparation for cold bathing, and afterwards for sea-bathing. We do not mean to affirm that tubercles do not often form in an inflammatory habit, and that bleeding is not often required in such a habit; we only question its propriety as a preventive measure."—P. 408.

Now we should like that the tonic method of treating consumption had been recommended on grounds much less liable to question than those now given. It is so very pleasant to be allowed to eat beef-steak, broiled fowl, chickens, veal, and all sorts of palatable food, and wash the whole down with four glasses of Port or Madeira, or six of claret, in measured allowance daily, instead of being compelled to starve on boiled bread and milk, rice, arrow-root, sago, or millet seed, qualified only with whey, lemonade, and such weak watery liquors,—that we do not wonder that the *tonic* system has numerous advocates.

Then it seems so pathological, so rational, and so plausible, to talk of supporting the system under the suppuration of the tubercles, or consequent upon them, to wait until the disease comes to a crisis, as we have heard some of those sage observers speak, and so absurd, unnatural, and chimerical a thing to expect, that starvation and medicine, bleedings every fortnight or month, blistering every week, and tartar emetic ointment successively, till the poor patient is in such a state that St Bartholomew was a fool to him,—are ever to give flesh and strength, that we do not wonder that the one has many supporters and the other few friends.

The whole doctrine, however, agreeable as it seems, rests on a delusion which ought to be dispelled without delay. It is doubtful whether a single case of genuine tubercular consumption ever recovered under the tonic method, even as practised by Dr Stewart. It is quite certain that many have died under it, —certainly without their symptoms being alleviated, or the course of the disease being retarded by the treatment. And, lastly, cases of genuine tubercular disorganization which have recovered have proceeded to that result independent of the tonic method, and often of any method whatever. These assertions require some explanation.

In the *first* place, all the cases of alleged recovery from *phthisis*, under the tonic treatment of Dr Stewart, were cases only of consumptive symptoms, that is, of weakness, emaciation, cough, and occasional sweatings, but without the true characters indicating the presence of tubercles. Most of them occurred in ladies, were instances either of dyspeptic complaints, combined with irregularity in the uterine function, or of dyspeptic phthisis, or, in other words, of chronic catarrh in relaxed habits, with irregular local determination. That cases of this kind recovered under tepid ablution of the chest, and other means calculated to restore the function of the cutaneous circulation, and the state of the digestive organs, is by no means wonderful; and many more extraordinary cures are daily performed. Where the cases were purely chronic bronchial disease, it is no more an object of astonishment that they recovered; and we refer to a small work published in 1801 by Mr Charles Pears of Kensington, for an account of forty-nine cases, which that gentleman, in the most amiable simplicity, calls pulmonary consumption, and in which twenty-one recovered, but which, most assuredly, from the symptoms, were merely bronchial inflammation.

In the *second* place, we can state positively that we have seen several, and known many, cases of genuine tubercular consumption, in which the individuals were, after obtaining the advice of Dr Stewart, put on the method of treatment recommended by that gentleman; and all these cases terminated as all other cases of consumption terminate. It is not to be denied that there is always some room for explanation. The case had been treated too long according to the debilitating plan; the patient had applied too late; or, in plain terms, for that is the true signification of such explanations, tubercles were in the lung, and had gone on to softening. We are really astonished to hear any professional person, who understands what tubercles are, talk in this manner.

In the *third* place, we have often repeated, that it is not a single tubercle or single excavation that the physician has to contend with in attempting or expecting the cure of *phthisis*; but in general a series of them in both lungs, so numerous and aggregated, that while one tubercular mass in the upper lobe is breaking down and undergoing elimination, others in the lower part of the upper lobe, and the upper part of the middle lobe, are proceeding to softening; and, all thickly distributed through the middle and lower part of the lungs, are keeping up the inflammatory and congestive irritation, and in some instances giving rise to *bronchitis*, in others to a constant peripneumony. We beg to ask, can any one who has inspected half a score of phthisical lungs talk of the tonic treatment under such circumstances, or expect that recovery of any kind, or under any treatment, is to take place? It is only in cases in which a single excavation, or two perhaps, exist, and in which either the extent of the lung is comparatively unaffected, or one lung at least sound, that we can expect, and that under very peculiar circumstances only, any thing like recovery. Whether tonic treatment, so called, will then do good, must depend on other circumstances altogether, which our limits will not allow us to specify.

But we further have to object to the introduction of the authority of Dr Stewart on the influence of the tonic treatment in *phthisis* on other grounds still more forcible. Every physician knows that, though the disease named consumption depends on the softening and elimination of tubercles, and the consequent bronchial and pneumonic inflammation, yet no two cases are similar to each other; and even in the course of the disease in the same patient, it assumes different characters and different symptoms. Supposing, therefore, a tonic method useful in one case, or at one stage of a case, it could not be expected to be beneficial in all cases, or at every period of the same case. In defiance, however, of this most certain conclusion, the treatment of Dr Stewart was one invariable and identical method for all, and must therefore have been injurious in nine cases in ten at the very lowest computation. We say this not only from our personal knowledge, but upon the combined testimony of several professional friends, all of whom have seen the treatment fairly tried in many different individuals. We care not what is the opinion of one set of fashionable but ignorant supporters of the merits of this method, or what is the opinion of another. We always regarded the confidence reposed in his method as a most perfect delusion on the part of the unhappy patients and their friends, and in all respects the object of pity rather than either of indignation or refutation. The confidence with which the alleged recoveries, on the other hand, were announced, was calculated only to be matter of ridicule, and not deserving serious attention. But when we see a rational physician in a scientific work, seriously commending a method which originated in ignorance, was propagated by delusion, and owed its temporary and apparent success to the mistake of confounding one disease for another, and which, as a system of the most indiscriminate and irrational empiricism ever practised, is now fallen into deserved contempt,—we confess it does make us consider whether it is always possible to ally science and medical practice. In a second edition we trust this pernicious advice, which is highly discreditable to the work, will be expunged.

On *Hemorrhage* in general, its theory, causes, and treatment, a very excellent article is given by Dr Thomas Watson.

Dr Kerr has communicated in an article on *Hydatids*, a sketch of their natural history, pathological relations, and effects on the bodies of men and animals, which was much wanted in the profession, and the perusal of which will be of great use in communicating correct views of the nature of these parasitical animals, and the causes of their production in the human body.

The article on *Hydrocephalus* by Dr Joy, and those on *Hydro-pericardium* and *Hydrothorax* by Dr Darwall, would both require long notices, for which our limits allow us no space. Both are very excellent and instructive essays on the subject.

The article on *Hydrophobia* by Dr James Bardsley, is decidedly the best essay on that subject extant. With perfect knowledge of the literary history of this immedicable disorder, Dr Bardsley has succeeded completely in giving a view of its history, of its symptoms, of the circumstances in which its transmission and its developement depends, and of the various methods which have been employed to combat its effects, not only useful and instructive to the physician, but interesting to the scholar and philosopher.

There are still in the present volume various other important articles which are entitled to particular mention; such, for instance, as that on *Identity* by Dr Montgomery, those on *Hypochondriasis* and *Insanity* by Dr Pritchard, that on *Hysteria* by Dr Conolly, and that on *Indigestion* by Dr Tweedy J. Todd.

These articles are so comprehensive and elaborate, that they would require to be reviewed separately, and not as parts of the present notice. If, therefore, we feel this requisite, we may at some future season take a survey of them in this manner. But at present we feel that we have, in our desire to do justice to each subject, far exceeded the usual limits assigned to such an article as that for the volume before us ought to be. The articles on *Insanity* and *Indigestion* are particularly excellent; and while the former shows well the long experience and study which the author has had in the observation and treatment of the forms of mental derangement, the latter exhibits a most complete view of the causes of the various forms of disordered digestion.

Upon the whole, we conceive that the second volume of this work most amply sustains the character which we have already expressed of the first. The majority of the articles are written in a masterly style, with perfect knowledge of the subject, and on a scale so comprehensive as either to give the reader a full view of all the most authentic and important information on each subject, or at least to put him in the way of supplying any defects which are inevitable in the best treatises.

Of the occasional inequality of the Essays, viewed as a whole, we have formerly spoken. We almost begin to think that this is produced by the great merit of those which are most elaborate and complete. The contrast which thence results is quite sufficient, without charging the others with inferiority, to give rise to a considerable degree of necessary and inevitable inequality.

The other inconvenience, of repetition and interference, we think ought to be avoided as much as possible; for though the reader thus enjoys the advantage of the views of two or more different authors, the practice, if often repeated, will swell each volume, and therefore the whole work to a much greater size, and with less reason and advantage, than if the rule were rigidly observed, to the exclusion of more useful matter.

ART. II.—*A Treatise on the Venereal Disease and its Varieties.* By WILLIAM WALLACE, M. R. I. A. &c. &c. &c. Surgeon to the Jervis Street Infirmary, Dublin, and to the Infirmary established in that City for the treatment of Cutaneous Diseases, including Venereal Diseases. London, 1833. Pp. 382.

DURING the last twenty-five years the treatment of syphilis has been much improved, in consequence of the symptoms having been more accurately noted, and the effects of various medicinal agents on the disease more carefully investigated. Much, however, remains to be done to reconcile and explain the discordant facts and opinions brought forward on the subject; and there is yet wanting a series of cautiously conducted and accurately related experiments on the nature and cure of the disease.

Mr Wallace evidently has it in his power to contribute largely to this; and were he to append to the forthcoming part of the work before us a tabular view of his cases and experiments, he would greatly enhance the merit of his treatise, and enable us to judge more accurately of the value of his conclusions. In the meantime, it may not be amiss to lay before the reader a short abstract of some of the author's doctrines and modes of treatment, referring to the book itself for the proofs on which they rest.

His general doctrines are, " that there exists among all the venereal affections the closest analogy; that, though greatly diversified in appearance, they are referable to one regular form of the disease, and to a limited number of varieties, as fixed in their characters and relations as the varieties of any other disease;" (Preface, p. vi.)—" that there exists nothing in its appearance or progress which is not in accordance with the general laws of pathology ;" (Ibid.)—and that all the diseases resulting from impure coition are produced by one specific cause or morbid poison.

These doctrines are pervaded with several gratuitous and even erroneous assumptions; and we confess we cannot understand why Mr Wallace has, without assigning reasons which may be deemed by competent judges adequate, here promulgated a set of opinions and inferences which are at variance with the united experience of most rational practical observers.

He examines the opinions of most writers since the time of Hunter, who seem to have understood true chancre always to possess a certain definite form and appearance, whereas Mr Hunter himself has alluded to its mutable character by such expressions as " venereal ulcers have *commonly* one character," —" a chancre has commonly a thickened base," &c. so that what is called the Hunterian chancre, is an ideal disease, ever confusing or misleading those who believe in the existence of the phantom.

The author has failed in his attempt to prove that gonorrhœa and syphilis are effects of the same poison. All the cases hitherto reported of different individuals being affected some with gonorrhœa, others with syphilis, in consequence of connection with the same woman within a very limited period, are liable to one of these objections; either that there is no proof that the same female may not have had both diseases, or that the men may have had communication with other women shortly before or after. The well-known case of the students, mentioned by Bell, is a strong proof of the incorrectness of the author's doctrine. Of this, however, he takes no notice, and, instead of giving us a few well-marked and well-authenticated cases, or direct experiments, he supports his opinion by a most extaordinary and somewhat unintelligible hypothesis, which our limits will not permit us to notice.

He classes all the primary diseases arising from impure coition under two heads.

1*st*, Primary syphilis.

2*d*, Degenerations of primary syphilis.

The degenerations of primary syphilis comprehend two divisions; the one characterized principally by irregularity in the processes of ulceration or destruction, the other by irregularity in the processes of reparation. The former comprehends three varieties; phagedenic primary syphilis, superficial primary syphilis, and catarrhal primary syphilis. The latter also comprehends three subdivisions; indurated primary syphilis, annular primary syphilis, and fungous primary syphilis. For the explanation of these terms, and the definition of each variety, we must refer to the work itself.

The symptoms of primary syphilis are most minutely and accurately described, and this, with the descriptions of the other forms of the disease, constitutes the best part of the work. This statement regarding the length of time which may elapse between the application of the poison and the appearance of the disease is necessarily vague. He thinks, that "perhaps, on the whole, we shall not be far from the truth if we fix the time between the third and the seventh day, though it may certainly commence either before or after these periods."

The progress of primary syphilis he divides into four stages. "The first is marked by phlogoses or redness and swelling; the second by the conversion of a portion of the phlogosed part into a peculiar texture, which soon becoming soft and diffluent, there results a loss of substance; the third by the regeneration of the part which had been lost by the previous actions; and the fourth by the contraction or consolidation of the new flesh, and by the formation of a covering for its protection." P. 87. The following are his observations regarding the duration of each stage. "On an average of a number of cases of primary syphilis produced by artificial inoculation, notes of which are now before me, the phlogoses or redness commenced on the second day, the stage of ulceration occupied seven days, that of granulation ten days, and cicatrization six days, making the whole, from the insertion of the virus to the healing of the ulcer, twenty-five days. I should also say from my observation of cases contracted in the common way, and which being uninterrupted in their course, presented the disease in its most regular form, that the periods just mentioned might be taken as a general average, the period of the origin or commencement of the disease alone excepted, and the difference in this respect may be explained by the difference in the manner of applying the poison."—Pp. 71, 72.

The treatment which he recommends in all the stages is essentially that of Mr Hunter, with the exception, that he disapproves of all mercurial preparations during the first two stages, whether employed locally or constitutionally, stating, that the most appalling cases of the disease which ever came under his observation were caused by such treatment. He admits that syphilis may be cured without mercury; but affirms, that, in consequence of the length of time required, and the chance, slight though it be, of secondary symptoms, it ought always to be used, except where the habits or constitution of the patient may render it unadvisable.

Our limits will not permit us to enter on the second division of the subject. We shall merely extract the passage containing his reasons for employing mercury in the cure of *gonorrhœa*, which is termed by him catarrhal *primary syphilis.*

> " *1st*, The power possessed by the catarrhal form of primary syphilis, to produce the ulcerating forms of the disease, points out a similarity in their morbid action, and affords some reason to presume, that they may be combated by analogous measures.
>
> " *2d*, As the catarrhal form of primary syphilis may produce constitutional symptoms similar to those which follow the ulcerating forms of this disease, and as mercury is admitted to have controlling influence in preventing those of the latter, it may be presumed, that it will have a similar influence over those of the former.
>
> " *3d*, As mercury has a remarkable power over the catarrhal form of secondary syphilis, or that form of syphilitic catarrh which results from contamination of the system, we may from analogy conclude, that it is likely to have some power over the catarrhal form of primary syphilis.
>
> " *4th*, If cases of catarrhal primary syphilis occur upon which mercury does not seem to exercise any control, there occur other cases in which we find it to act in the most salutary manner, and others, again, in which the discharge will continue, and be after a time followed by induration and bubo, and most probably by secondary symptoms, unless this medicine be given.
>
> " *5th*, If mercury does not serve any useful purpose in the treatment of catarrhal syphilis, it can do no harm if properly administered, nor will it interfere with the administration of any other remedies."—Pp. 248, 249.

It is almost unnecessary to state, that these views, though not new, are directly opposed to the experience and opinions of the best surgeons of the present time; and, until some direct and unequivocal experiments shall be adduced in support of them, we must be excused for thinking them utterly preposterous. In conclusion we would observe, that the best parts of the work are the descriptive. In the rest we find little that is new, save some fanciful hypotheses. Our quotations have exhibited the most favourable specimens of the style. The sentences are in general long and intricate, and the reasoning often difficult to be followed, from the multitude of words in which it is clothed. The work would be much more intelligible if reduced to half its size.

We trust that all these faults will be avoided in the forthcoming portion, and that the illustrations which are to follow will do credit to the taste of the artists and the industry of their employer.

ART. III.—*Report of the Experiments on Animal Magnetism, made by a Committee of the Medical Section of the French Royal Academy of Sciences: read at the Meetings of the 21st and 28th of June* 1831. Translated, and now for the first time published; with an historical and explanatory Introduction, and an Appendix, by J. C. COLQUHOUN, Esq. 8vo, pp. 252. Edin. 1833.

LITTLE as what is termed Animal Magnetism has been attended to in Britain, it has twice formed the subject of grave investigation by the Medical Faculty of Paris:—first in 1784, under the authority of a Royal mandate; and secondly in 1826, by a special committee named by the Medical Section of the Royal Academy of Sciences. The result of the first inquiry was unfavourable to the pretensions of this new agent in the cure of disease; and the opinion of the commissioners, attributing the whole of the effects produced to *imagination*, *imitation*, and *attouchement*, seems for a long period to have been acquiesced in both by moral and physiological inquirers. The committee of the Academy appointed in 1826, on the other hand, were rather inclined to believe in a specific and peculiar agency, but modestly conclude with observing, "that they have communicated in their Reports facts of sufficient importance to entitle them to think, that the Academy ought to encourage investigations into the subject of Animal Magnetism, as a very curious branch of psychology and natural history."

Though many volumes have been written and published in France and Germany on the subject of Animal Magnetism; and though periodical works have for years been in both countries circulated to extend the knowledge and practice of the art, in Britain, we believe, little is known regarding animal magnetism beyond the decision of the French Commissioners of 1784, and the ephemeral success of the metallic tractors of Perkins, the effects attributed to which Dr Haygarth demonstrated to be owing to the Imagination alone.* The public and the profession are therefore indebted to Mr Colquhoun for laying the recent Report of the Committee of the Academy before them in an English dress; and still more for the very curious and interesting historical and explanatory Introduction prefixed. The volume is concluded with an equally interesting Appendix by Mr Colquhoun, "On the singular phenomena of the transference of the faculties from their usual and appropriate organs to the epigastrium and other parts of the nervous system, which has been occasionally observed to occur in cases of catalepsy and somnambulism." The facts detailed in this Appendix and the preceding Report, supposing them to have been carefully observed, and by competent witnesses, will no doubt excite the " special wonder" of many, and lead them to conclude with Hamlet and Mr Colquhoun, that

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* Of the Imagination as a Cause and as a Cure of Disorders of the Body; exemplified by Fictitious Tractors and Epidemical Convulsions. By John Haygarth, M. D. Bath, 1800.

> " There are more things in Heaven and Earth,
> Than are dreamt of in our philosophy."

" In proceeding to execute the task" (says Mr Colquhoun) " I have undertaken in the present publication, I am quite aware that I may expose myself to the charge of drawing largely upon the credulity of my countrymen. In my own defence and justification, however, I may be permitted to declare, that I shall bring forward no facts, as such, unless they be sufficiently attested by men of unimpeachable veracity; men abundantly qualified by their scientific attainments, perspicacity, and cautious spirit of research, for investigating the reality of the facts which they profess to have witnessed, and who, besides, could have no conceivable interest in the propagation of falsehood. I may add, that I have myself produced, and consequently witnessed, several of the phenomena described in the following pages, and that under circumstances in which no deception was possible. My object, however, is not so much to force conviction upon the minds of the careless or the blindly incredulous, as to solicit the attention of the inquisitive to a subject of rational and most interesting inquiry; and, if possible, to excite a corresponding spirit of investigation among the friends of truth and science."—Pp. 3, 4.

In tracing the history of Animal Magnetism previous to the period when Mesmer and his disciples attracted the attention of the European physicians by their novel proceedings, Mr Colquhoun, a firm believer in the beneficial effects of the practice, presses into his narrative every circumstance, however trivial, which he conceives can be brought to bear on the subject. In reference to the manipulations of the magnetisers, for instance, Mr C. alludes to the simple operations in practice among mankind in the earliest times, and performed as it were instinctively. In all ages a certain medicinal virtue has been ascribed to the touch of the human hand, and rubbing with it the part of the body injured, has in many instances been found to have a soothing influence over pain. The ancient writers are full of allusions to manipulations of this nature in the alleviation of disease; and the cures effected by the touch of the priests in the Temples of Health, may be explained, Mr C. conceives, by supposing the exercise, in ancient times, of something equivalent to the manipulations of the modern magnetisers. At a subsequent period, he adds, these singular effects were attributed to the impositions of a crafty priesthood on the ignorance and credulity of the people. But since the discoveries which have been made of the effects of what is termed Animal Magnetism, it has appeared possible that these phenomena depended upon a knowledge of certain principles, afterwards obscured or lost on the decline of those institutions by which it had been cherished.

The following verses of Solon, as translated by Stanley in his History of Philosophy, have been quoted as confirming the idea that something similar to the processes of animal magnetising were known among the ancients:

> "The smallest hurts sometimes increase and rage,
> More than all art of physic can assuage;
> Sometimes the fury of the worst disease
> The hand, by gentle stroking, will appease."

In the Amphitruo of Plautus this passage occurs: "Quid, si ego illum tractim tangam, ut dormiat," which are thus explained by Taubmann in an edition of Plautus published in 1612.—"Tractim tangam, ut dormiat. Perbelle videtur ludere, tralatione a nutriculis ductâ, quæ pusiones palma leniuscule demulcent ut dormiant." And in the following verses of Martial the process is thus described: (B. iii. Ep. 82.)

> "Percurrit agili corpus arte tractatrix,
> Manumque doctam spargit omnibus membris."

Asclepiades of Bithynia, as stated by Sprengel, recommended frictions, to be continued till the patient fell asleep; and Tacitus (Hist. iv. 81), and Suetonius (in Vespas. vii. §. 5, 6), are quoted as detailing two remarkable magnetic cures which were performed by the Emperor Vespasian at Alexandria. The Latin words *Tractator* and *Tractatrix*, are also referred to as implying the knowledge and practice of some art of this kind among the Romans.

Mr Colquhoun also refers to the immemorial practice of the oriental nations for the early practice of palmar manipulation in the cure of diseases. The Chaldean priests are said to have practised this mode of treatment, as also the Indian Bramins and the Parsi. And the accounts of the Jesuit missionaries to China are pointed out as indicating the practice to have prevailed in that country for ages.

But leaving these incidental allusions to a practice which may be explained without any reference to an unseen and unknown agent excited by such manipulations, Mr C. commences his history of modern animal magnetism about the middle of the seventeenth century, and connects it with the appearance in London of a certain gardener of the name of Levret, an Irish gentleman, Valentine Greatrakes, and Dr Streper, who pretended to cure various diseases by stroking with the hand. The efficacy of the treatment adopted by Greatrakes is attested by the celebrated Mr Boyle, and the philosopher Cudworth was among his patients. No mention is made of sleep or somnambulism in the accounts given of the cures performed by Greatrakes.

The next individual who figures in Mr Colquhoun's historical summary is a German exorcist named John Joseph Gassner, born in 1727. Bred up a Catholic minister, he took up the notion that most diseases arose from demoniacal possession, and could be cured by exorcism. He began with his parishioners, and ultimately excited considerable attention in a wider circle for his cures among patients affected with spasmodic and epileptic diseases. This was about the year 1774. A public officer took regular notes of his procedure, and the facts were attested by persons of respectability.

But all previous experimenters with this obscure and impalpable agency in the cure of disease, were thrown in the shade on the appearance of the celebrated Mesmer. Frederick Anthony Mesmer, a native of Switzerland, was born in 1734. In early life he went to Vienna for the purpose of studying physic under Van Swieten and De Haen, and having taken his degree, he subsequently settled in that capital as a practising physician. By an advantageous marriage he placed himself in independent circumstances. In 1766 he wrote a dissertation on the Influence of the Planets on the Human body, which drew upon him the ridicule of his professional brethren. His theory is founded upon the assumed existence of a certain subtile element pervading all nature; and this element he at first thought to have discovered in electricity, but afterwards, in 1773, resorted to the magnet, to which his attention had been directed by the professor of astronomy at Vienna, Maximilian Hell. The result was, that artificial magnets prepared for him by his friend the professor were applied in various forms to individuals affected with disease, and with the most promising success. His discovery was published in the form of a *Letter to a Foreign Physician on the Magnetic Remedy*,—cases were made public through the medium of the press,—and other physicians ventured on a practice which appeared so satisfactory.

His medical brethren in Vienna did not, however, generally adopt the magnetic remedy, and he found himself so uncomfortably situated from their hostility to his practice, that he withdrew for a time from the capital. In 1775 and 1776, he accordingly travelled into Bavaria and Switzerland, and performed what were accounted remarkable cures in the public hospitals of

Berne and Zurich. Upon his return to Vienna, he established an hospital in his own house, where he received poor patients likely to be benefited by the magnetic treatment.

In his early practice, Mesmer made use of magnetic rods in operating upon his patients, believing the remedial efficacy to consist in a certain virtue inherent in the mineral magnet. Further experience, however, now led him to suppose, that the magnetic rods did not operate merely by attraction, but that they at the same time served as the conductors of a fluid issuing from his own body. This conjecture was converted into certainty when he found from experiment that he could produce the same effects without using the magnet, by merely passing his hands from the head of the patient towards the lower extremities, or even by making these motions at some distance from the person. He further discovered that he could communicate the virtue to inanimate objects by merely rubbing them with his hand. Swayed, perhaps, by an analogous mode of magnetizing iron by repeated friction in one direction, and partly also, perhaps, by the supposed fact, that the animal body exhibited a certain polarity and inclination, Mesmer at once concluded, that there exists in the animal frame an original and peculiar species of magnetism; and that a similar magnetic influence extends over all nature. To this alleged influence, as it was exhibited in the animal body, he gave the name of *Animal Magnetism*, to distinguish its effects from those of the mineral magnet.

From this period Mesmer ceased to make use of the magnetic rods, considering his own body to be the depository of the magnetic virtue, which he could communicate not only by manipulation but volition, and thus relieve many cases of disease. Learned individuals endeavoured to throw discredit on his mode of treatment, and many believed him to be an impostor or deluded enthusiast. To remove these imputations, Mesmer sent circular letters to the most celebrated learned bodies in Europe, in which he attempted to explain his principles, and gave an account of the cures he had performed. His success not meeting his expectations, he again left Vienna in the year 1777, and made his appearance at Paris in February 1778, where he was fortunate enough to make a convert of Dr D'Eslon, who encouraged Mesmer to publish in the following year a short treatise, which contained an abridged view of his system in twenty-seven propositions. The following is a summary of his views:—

"There exists a reciprocal influence between the heavenly bodies, the earth, and animated beings. The medium of this influence is a very subtile fluid, pervading the whole universe, which, from its nature, is capable of receiving, propagating, and communicating every impulse of motion. This reciprocal action is subject to certain mechanical laws, which have not yet been discovered. From this action there result alternative effects, which may be considered as a *flux* and *re-flux*. This flux and re-flux may be more or less general, more or less particular, more or less compounded, according to the nature of the causes which determine them. It is by this operation (the most universal of those which nature exhibits to us) that the relations of activity are maintained between the heavenly bodies, the earth, and its constituent parts. The properties of matter, and of organized bodies, depend upon this operation. The animal body experiences the alternative effects of this agent; which, by insinuating itself into the substance of the nerves, affects them immediately. The human body exhibits properties analogous to those of the magnet, such as *polarity* and *inclination*. The property of the animal body, which renders it susceptible of this influence, occasioned its denomination of *animal magnetism*. The action and the virtue of *animal magnetism* are capable of being communicated to other animated and inanimate bodies. The one and the other, however, are susceptible of them in different degrees. This action and this virtue can be increased and propagated by these bodies. We observe from experience the flowing of a certain subtile matter, which penetrates all bodies, without perceptibly losing any of its activity; and it operates at a considerable distance, without the aid of any intermediate object. Like light, it is reflected by mirrors; and it is invigorated, diffused, and communicated by sound. This virtue is capable of being accumulated, concentrated, and transported. There are animated bodies, although very rare, which possess a property so opposite to magnetism that their mere presence prevents all its effects in other bodies. This opposite power also penetrates all bodies, and is likewise capable of being concentrated and diffused: It is, therefore, not merely a negative, but a really positive power. The mineral magnet, whether natural or artificial, is likewise equally susceptible with other bodies of *animal magnetism*, and even of the opposite virtue, without suffering, in either case, any alteration of its agency in respect to iron; which proves that the principle of *animal magnetism* is essentially different from that of the mineral. This system will furnish new illustrations of the nature of fire and light; as also of the theory of attraction, of flux and re-flux, of the magnet and of electricity. It will inform us, that the magnet and artificial electricity only have, with respect to diseases, properties in common with several other agents which nature presents to us; and that, if the former have produced some salutary effects, these effects are to be ascribed to *animal magnetism*. By means of *animal magnetism*, nervous diseases may be cured immediately, and other complaints mediately: It explains to us the operation of the remedies, and promotes the salutary crises. With the knowledge of its principles, the physician can discover with certainty, the origin, the nature, and the progress of diseases, even the most complicated; he can arrest their progress, and ultimately cure them, without ever exposing the patient to dangerous or troublesome consequences. Lastly, this doctrine will enable the physician to judge accurately with respect to the degree of health possessed by all individuals, and to preserve them from those diseases to which they may be exposed. Thus, the science of medicine may attain its highest degree of perfection." Pp. 54—56.

The theory of Mesmer was treated with neglect or contempt by the men of science in France; and Dr D'Eslon, for having adopted the doctrines of Mesmer, and published a work upon animal magnetism, was deprived of his vote in the Medical Faculty of Paris for a year, and threatened with expulsion if, within that time, he did not recant. But in spite of this opposition, the successful treatment of some patients in the more respectable classes of society, among whom was the celebrated Court de Gebelin, the author of the *Monde Primitif*, extended the fame of the practice; and Mesmer's discovery came to be regarded by many as the most important that had been made by human ingenuity. His house was crowded with patients of all ranks, and from every quarter; and in the course of a short time he is said to have amassed a considerable fortune.

Mesmer operated, not only by the actual touch of his hands, or by means of an iron rod extended to some distance from his body, but also by means of cords. He placed his patients in connection with magnetised trees, or conducted the magnetic fluid out of covered vessels *(baguets)* to the patients, who sat round in a circle. By this treatment he threw them into very peculiar states, presenting the phenomena both of sleeping and waking. And in order to increase the efficacy of the treatment, the chamber was partially darkened; mirrors were placed round it; and the profound silence was only interrupted by the occasional tones of the harmonica or harpsichord.

The practice of magnetism, ridiculed and attacked as it was by the Parisian journals, and disapproved of by the medical faculty, Mesmer found it at length necessary to defend; and in 1781 he published a "*Precis Historique des faits relatifs au Magnetisme Animal*," a work in which he set out with the extraordinary principle, that "there is but one health, one disease, and one remedy," and arrogated to himself the discovery of this universal remedy.

About this period Mesmer quitted Paris, and went for a short time to reside at Spaa; but was soon again recalled by his friends to the French metropolis, for the purpose of delivering a course of lectures on his magnetic remedy. Previous to his going to Spaa, it is said that the French government offered him 20,000 livres for the communication of his secret, upon the pretext that it might give occasion to dangerous abuses. He refused this; but upon his return he established a secret society under the name of *The Harmony*, in which he initiated those into the mysteries of treatment who paid him one hundred Louis d'or for the secret. This society included four physicians among its members. Some of Mesmer's pupils established Harmonic Societies in different provinces and towns of France, by means of which the destitute sick were magnetized gratis, and the most interesting cases made public.

At length, on the 12th of March 1784, a royal mandate was issued to the Medical Faculty of Paris, requiring them to appoint commissioners to investigate the merits of the magnetic treatment. Two commissions were in consequence appointed. The first consisted of members of the Academy of Sciences, viz. Franklin, Le Roi, Bailly, De Bori, and Lavoisier; and of the Medical Faculty Bovie, and after his death Majault, Sallin, D'Arcet, and Guillotin. The second was composed of members of the Society of Physicians,—Poissonnier, Desperrieres, Caille, Mauduyt, Andry, and Jussieu. The report of the Commissioners was unfavourable to the pretensions of animal magnetism; and though one of these commissioners, Jussieu, refused to subscribe the general report, and even published a separate one in favour of Mesmer's practices, the public generally acquiesced in the opinion of the majority. The results of their investigation are arranged under the following heads.

"1. The fluid which the commissioners name the animal magnetic fluid, does not exist, or it is inappreciable by the senses.

"2. The existence of this fluid can only be demonstrated by its curative effects in the treatment of diseases, or by its momentary effects on the animal economy. The proof drawn from the treatment of diseases must be excluded, as furnishing uncertain and often deceptive results.

"3. The true proofs,—proofs purely physical,—of the existence of this fluid, are its momentary effects on the animal body. To assure themselves of these effects, the commissioners have made experiments, 1. upon themselves; 2. upon seven sick people; 3. upon four persons; 4. upon a company in the house of Mr Franklin; 5. upon patients collected at the house of M. Jumelin; 6. with a magnetised tree; 7. upon different subjects.

"4. From these experiments the commissioners have concluded, that imagination does every thing, and that magnetism is nothing. Imagination, Imitation, and Touch (attouchement), are the true causes of the effects attributed to animal magnetism.

"5. The magnetic processes being dangerous, it follows that all public treatment where the means of magnetism are employed will in the end be attended with disagreeable consequences."

The favourers of animal magnetism, and Mr Colquhoun among the rest, consider this investigation as having been conducted in a very superficial manner, and as altogether unsatisfactory. While the greater portion of well-informed and scientific men, however, acquiesced in the decision of the commissioners, others were not wanting, in spite of the learning and ridicule brought against the doctrine, to practise magnetism as a medical art, and to form schools and societies for its cultivation and improvement. In 1787 the celebrated Lavater imparted the system, as improved by the Marquis de Puysegur, to the physicians Bicker, Olbers, and Wienholt in Bremen; and about the same time Boeckmann and Gmelin received it directly from Strasburg. To these physicians Germany was indebted for the revival of the magnetic treatment in that country, where it is said to have since continued to flourish under the direct countenance of some of the local governments.

Mesmer afterwards retired to his native country, Switzerland, where he died in 1815 at the age of eighty-one. After his retirement the professors of animal magnetism in France became divided into three different schools, varying much from each other in their modes of treatment. The original school of Mesmer at Paris operated principally by physical means; by touching, rubbing, and pressure with the hand, or by the employment of metal conductors, magnetical vessels, trees and magnetized baths. The convulsions which ensued were regarded as remedial, and the object of the manipulations was to promote these *crises;* for which purpose *chambres de crise* were fitted up with mattrasses and cushions to prevent the convulsed patients from injuring themselves.

The second school, established at Lyons and Ostend, under the direction of the Chevalier Barbarin, operated purely psychically, admitting no other agency in the magnetic process than *faith* and *volition.* The energy of the operator's will was alone considered necessary to produce all the effects of magnetism.

The third school, named *La Société Harmonique des amis reunis* at Strasburg, under the direction of the Marquis of Puysegur, combined the physical and psychical treatment; the manipulations were extremely gentle; and the hands, instead of being brought into contact with the patient, were frequently moved at some distance.

To understand more completely the phenomena produced by these various modes of magnetic treatment, we quote an abstract of the six classes into which they have been divided by Professor Kluge of Berlin.

"The *first* degree presents no remarkable phenomena. The intellect and the senses still retain their usual powers and susceptibilities. For this reason this first degree has been denominated the degree of *waking:*

"In the *second* degree, most of the senses still remain in a state of activity. That of vision only is impaired; the eye withdrawing itself gradually from the power of the will. This second degree, in which the sensibility is partially disturbed, is by some magnetisers called the *half-sleep*, or the *imperfect crisis.*

"In the *third* degree, the whole of the organs, through the medium of which our correspondence with the external world is carried on (the senses) refuse to perform their respective functions, and the patient is placed in that unconscious state of existence, which is called the *magnetic sleep.*

"In the *fourth* degree, the patient awakes, as it were, within himself, and his consciousness returns. He is in a state which can neither be properly called sleeping nor waking, but which appears to be something between the two. When in this state, he is again placed in a very peculiar connection with the external world. This fourth degree has been distinguished in the writings of the animal magnetisers by the name of the *perfect crisis,* or *simple somnambulism.*

"In the *fifth* degree, the patient is placed in what is called the state of *self-intuition.* When in this situation he is said to obtain a clear knowledge of his own internal, mental, and bodily state, is enabled to calculate, with accuracy, the phenomena of disease which will naturally and inevitably occur, and to determine what are their most appropriate and effectual remedies. He is also said to possess the same power of internal inspection with regard to other persons who have been placed in magnetic connection with him. From this fifth degree all the subsequent magnetic states are comprehended under the denomination of *lucidity,* or *lucid vision,* (Fr. *Clairvoyance ;* Germ. *Hellsehen.*)

"In the *sixth* degree, the *lucid vision,* which the patient possessed in the former degree, extends to all objects, near and at a distance, in space and time; hence it has been called the degree of *universal lucidity.*"—Pp. 88, 89.

Such was the state of animal magnetism on the continent at the period of the Report by the Committee of the Medical Section of the French Royal Academy of Sciences. This Committee was appointed in February 1826, and was composed of the following persons, viz. MM. Bourdois, Double, Itard, Gueneau de Hussy, Guersent, Fouquier, Laennec, Leroux, Magendie, Marc, and Thillaye. Laennec having left Paris on account of his health, M. Husson was named in his place. The inquiry was suggested to the Academy by M. Foissac, a young physician, and supporter of the magnetic treatment, and the committee "declare, that it is to his constant and persevering intervention, and to the active zeal of M. Dupotet," another magnetiser, that they are "indebted for the greater part of the materials embodied in the Report." The committee was appointed in February 1826, and the Report was made in June 1831.

The Report commences with a kind of apologetical deprecation of the judgment of the Academy, in which the committee state, that they are far from presenting it with the view of fixing their opinion upon the question of magnetism, as the said Report cannot and ought not to be " considered in any other light than as the combination and classification of the facts which we have hitherto observed." Before giving an abridged view of this curious document, it is necessary, in the first place, to detail the modes of operation employed, and the general classification of the results.

" The person to be magnetised was placed in a sitting posture, either in a convenient elbow-chair, or on a couch—sometimes even in a common chair.

" The magnetiser, seated on a chair a little more elevated, opposite, and at the distance of about a foot from the patient, seemed to collect himself for some moments, during which he took the thumbs of the patient between his two fingers, so that the interior parts of the thumbs were in contact with each other. He fixed his eyes upon the patient, and remained in this position until he felt that an equal degree of heat was established between the thumbs of the magnetiser and the magnetised. He then withdrew his hands, turning them outward, placed them on the shoulders, where he allowed them to remain about a minute, and conducted them slowly, by a sort of very slight friction, along the arms to the extremity of the fingers. This operation he performed five or six times, which the magnetisers call a *pass ;* he then placed his hands above the head, held them there a moment, drew them downwards in front of the face at the distance of one or two inches to the *epigastrium* (pit of the stomach), resting his fingers upon this part of the body ; and he descended slowly along the body to the feet. These *passes* were repeated during the greater part of the sitting ; and when he wished to terminate it, he prolonged them beyond the extremity of the hands and feet, shaking his fingers each time. Finally, he made transverse *passes* before the face and the breast at the distance of from three to four inches, presenting his two hands approximated to each other, and separating them abruptly.

At other times, he approximated the fingers of each hand, and presented them at the distance of three or four inches from the head or the stomach, leaving them in this position during one or two minutes; then, withdrawing and approximating them alternately with more or less rapidity, he imitated the very natural movement which is performed when we wish to shake off a liquid which has moistened the extremity of our fingers. These different modes of operation have been adopted in all our experiments, without any preference of the one to the other. Frequently we employed only one, sometimes two, and in the choice we made, we were never guided by the idea that one method would produce an effect more readily and more conspicuously than the other.

"In enumerating the facts observed, your committee shall not follow precisely the order of time in which they were collected; it has appeared to them to be much more convenient, and, above all, much more rational, to present them to you classified according to the more or less conspicuous degree of the magnetic action recognized in each.

"We have, therefore, established the following four divisions:

"I. Magnetism has no effect upon persons in a state of sound health, nor upon some diseased persons.

"II. In others, its effects are slight.

"III. These effects are sometimes produced by *ennui*, by monotony, by the imagination.

"IV. We have seen them developed independently of these last causes, most probably as the effect of magnetism alone."—Pp. 118-120.

I. In support of the first conclusion, that magnetism has no effect upon persons in a state of sound health, nor upon some diseased persons, the case of M. Husson is related, who in a state of health exposed himself for three quarters of an hour, with his eyes closed, and in complete immobility, to the efforts of a magnetiser, without experiencing any effect. M. Bourdois, another member of committee, with an indisposition said to be favourable to the developement of the magnetic phenomena, was magnetised with no perceptible results; and at the same meeting M. Itard, affected with chronic rheumatism, submitted to the operation without any other result than the pulse beating fourteen more in the minute than before the manipulation.

II. Under the second head, or slight effects of magnetism, the reporters state the cases of M. Magnien, M. Roux, Anne Bourdin, and Theresa Tierlin, and conclude as follows:—"We can attach no importance whatever to the partial amelioration in the morbid symptoms of the very insignificant disorders of these two women. If these disorders existed, time and repose may have triumphed over them. If they did not exist, as is too frequently the case, the feigned malady might have disappeared as well without magnetism as with it."

III. Under the head of cases where the effects produced may be referred to ennui, monotony, and the imagination, it would be superfluous to enter into the details.

IV. The fourth division contains those cases where the effects produced are referred by the reporters to the effect of magnetism alone; and as this forms the material part of the Report, it will be necessary to consider the evidence derived from these cases at greater length.

1. A child of 28 months, subject like its father to attacks of epilepsy, was magnetised by M. Foissac in October 1827,

"Almost immediately after the commencement of the treatment, the child rubbed its eyes, bent its head to one side, supported it upon one of the cushions of the sofa, where we had placed it, yawned, appeared agitated, scratched its head and its ears, seemed to contend against the approach of sleep, and soon rose, if we may be allowed the expression, grumbling; it was seized with the desire of making water, and after being satisfied in this respect it appeared very sprightly. We magnetised it again, but as there appeared, this time, no symptom of drowsiness, we terminated the experiment."—P. 130.

On this case we only remark, that the first experiment proves nothing whatever; as any child not terrified at the appearance of the doctors, would, in the silence and solemnity of the movements it witnessed, and in which it had no share, probably be as restless as the subject of this case, or try to shut its eyes on what might appear not very amusing. The second attempt on the same child, after it had seen the beginning and ending of the process in the first instance, excited neither surprise nor drowsiness.

2. A dumb lad, 18 years of age, being subject to attacks of epilepsy, was magnetised fifteen times by M. Foissac. The epileptic attacks were entirely suspended during the sittings, and did not return until eight months afterwards. The effects experienced were a heaviness of the eyelids, a general numbness, a desire to sleep, and sometimes vertigo. In this case, the effects of the silence, the solemnity of the process fifteen times repeated by a body of doctors on an individual such as the patient in this case, who could only guess at the consequences from the intimations conveyed to his eye-sight, seem not to have been appreciated in drawing the conclusion.

3. The next case was that of M. Itard. He experienced, when magnetised by M. Dupotet in October 1827, heaviness without sleep, a setting on edge in the nerves of the face, convulsive motions in the muscles of the face and jaws, and a flow of saliva of a metallic taste—a sensation analogous to that which he had experienced from galvanism. The two first sittings produced headach, which lasted several hours, and at the same time his habitual pains were considerably diminished. A year afterwards M. Itard was magnetised eighteen times by M. Foissac for pains in the head. A flow of saliva, and twice the sensation of a metallic flavour, were the symptoms related. This case rests on the testimony of M. Itard.

4. Mademoiselle Louisa Delaplane, aged 16 years, had catamenial suppression, with pains and tension and swelling in the lower part of the abdomen, when she was admitted into the Hotel-Dieu, in June 1826. No relief having been obtained

by the ordinary means, she was magnetised by M. Foissac seven times, from the 22d to the 28th of that month. She fell asleep at the first sitting, at the end of eight minutes, and remained for some time in a state of complete insensibility. "At the second sitting she answered by affirmative and negative motions of the head, to the questions which were addressed to her. At the third, she gave us to understand, that in two days she would speak and point out the nature, and seat of her complaint. She was pinched very strongly, so as to produce a livid mark, but gave no sign of sensibility. A bottle full of ammonia was opened under her nose. She was insensible to the first inspiration—at the second, she carried her hand to her nose. When she awoke she complained of pain in the part which had been pinched, as also of the fumes of the ammonia."—P. 136.

5. Baptiste Chamet, after eight minutes, made an affirmative motion with his hand that he was asleep. As he seemed to suffer pain, he was asked what ailed him, when he pointed to his breast. M. Guersent pinched him severely on the wrist, and he manifested no sense of pain. On forcibly opening the eyelid, the ball of the eye was found turned towards the top of the orbit.

6. The three following cases are gross impositions attempted to be played off on the committee, on the subject of somnambulism; and the insertion of the particulars in these only serves to throw doubt upon the future cases of the same reputed nature, where the parties may be supposed to have been better trained.

"In these circumstances, we ardently desired to elucidate the question, and we thought that it was essential, as well to the interest of the investigations in which we were engaged, as to withdraw ourselves from the deceptions of quackery, to ascertain whether there was any sign by which we could be assured of the real existence of somnambulism; that is to say, whether the magnetised person, when asleep, was—permit us the expression—more than asleep, whether he had arrived at the state of somnambulism."—Pp. 141, 142.

7. M. Dupotet, one of the magnetisers, now undertook to reduce the question with regard to magnetic somnambulism to absolute certainty. He undertook to produce at pleasure, and out of sight of those individuals whom he had placed in a state of somnambulism, convulsive motions in any part of their bodies, by merely directing his finger towards that part. An experiment on Chamet and Mademoiselle Lemaitre, formerly subjected to the experiments of the committee, and on M. Chales, French consul at Odessa, and M. Petit, a tutor, so far satisfied the inquirers as to this point; but, on the whole, "although they have witnessed several cases in which this contractile faculty has

been put in play by the approximation of the fingers or pieces of metal, they have need of new facts, in order to enable them to appreciate this phenomenon, upon the constancy and importance of which they do not conceive themselves sufficiently informed to entitle them to pronounce a decided opinion."—P. 146.

8. The next case is that of Mademoiselle Sanson, about whose identity as having undergone magnetism six years before, there was at first some doubt. She was magnetised by M. Dupotet—instantly thrown into the magnetic sleep—and seemed insensible to sudden and violent noise while in that state. The eyeballs were turned convulsively upwards.

9. The following case is the most remarkable of all. A lady, 64 years of age, was affected with a cancer in the right breast, for which she had been magnetised without any other effect than throwing her into a profound sleep, during which all insensibility appeared to be annihilated, while the ideas retained all their clearness. M. Chapelain, the lady's medical adviser, "proposed to M. Clocquet to operate upon her while she was plunged in this magnetic sleep. The latter having deemed the operation indispensable, consented. The two previous evenings, this lady was magnetised several times by M. Chapelain, who, in her somnambulism, disposed her to submit to the operation,—who had even led her to converse about it with calmness, although, when awake, she rejected the idea with horror.

"Upon the day fixed on for the operation, M. Clocquet arriving at half-past ten in the morning, found the patient dressed and seated on an elbow-chair, in the attitude of a person enjoying a quiet natural sleep. She had returned about an hour before from mass, which she attended regularly at the same hour. Since her return, M. Chapelain had placed her in a state of magnetic sleep, and she talked with great calmness of the operation to which she was about to submit. Every thing having been arranged for the operation, she undrest herself, and sat down upon a chair.

"M. Chapelain supported the right arm, the left was permitted to hang down at the side of the body. M. Pailloux, house pupil of the hospital of St Louis, was employed to present the instruments, and to make the ligatures. A first incision commencing at the arm-pit was continued beyond the tumour as far as the internal surface of the breast. The second, commenced at the same point, separated the tumour from beneath, and was continued until it met the first: The swelled ganglions (*ganglions engorgés*) were dissected with precaution on account of their vicinity to the axillary artery, and the tumour was extirpated. The operation lasted from ten to twelve minutes.

"During all this time, the patient continued to converse quietly with the operator, and did not exhibit the slightest sign of sensibility. There was no motion of the limbs or of the features, no change in the respiration nor in the voice, no emotion even in the pulse. The patient continued in the same state of automatic indifference and impassibility, in which she was some minutes before the operation. There was no occasion to hold, but only to support her. A ligature was applied to the lateral thoracic artery, which was open during the extraction of the ganglions: The wound was united by means of adhesive plaster, and dressed. The patient was put to bed while still in a state of somnambulism, in which she was left for forty-eight hours. An hour after the operation, there appeared a slight hemorrhage, which was attended with no consequence. The first dressing was taken off on the following Tuesday, the 14th,—the wound was cleaned and dressed anew—the patient exhibited no sensibility nor pain—the pulse preserved its usual rate."—Pp. 149—151.

This remarkable case was not witnessed by the committee; but they find it impressed with such a character of truth, that they have no fear in presenting it to the Academy as the most incontestable evidence of that state of torpor and insensibility which is produced by magnetism.

10. The next point which the committee set themselves to ascertain was the power of seeing through the closed eyelids, which M. Petit was said to possess during somnambulism. In the first experiment with coins, and a watch, the hands of which were purposely deranged, M. Petit was completely at fault; but in a subsequent one, at the same sitting, he was engaged in a game at piquet, which he played correctly. On 15th March 1826, he was again magnetised, and thrown into a state of somnambulism, when the following experiment took place:—

" M. Ribes, member of the Academy, presented a catalogue which he took from his pocket. The somnambulist, after some efforts which seemed to fatigue him, read very distinctly the words: *Lavater. Il est bien difficile de connaitre les hommes.* The last words were printed in very small characters. A passport was placed under his eyes; he recognized it, and called it a *passe-homme.* Some moments afterwards, a *port d'armes* was substituted, which we all know to be in almost all respects similar to a passport, and the blank side of it was presented to him. M. Petit, at first, could only recognize that it was of a particular figure, and very like the former. A few moments afterwards, he told us what it was, and read distinctly the words: *De par le roi*, and on the left, *port d'armes.* Again, he was shown an open letter; he declared that he could not read it, as he did not understand English. In fact it was an English letter.

" M. Bourdois took from his pocket a snuff-box, upon which there was a cameo set in gold. At first the somnambulist could not see it distinctly; he said that the gold setting dazzled him. When the setting was covered with the fingers, he said that he saw the emblem of fidelity. When pressed to tell what this emblem was, he added: 'I see a dog, he is as if on his hind legs before an altar.' This, in fact, was what was represented.

"A closed letter was presented to him: He could not discover any of its contents. He only followed the directions of the lines with his finger: But he easily read the address, although it contained a pretty difficult name: To M. de Rockenstroh.

"All these experiments were extremely fatiguing to M. Petit. He was allowed to repose for an instant: Then, as he was very fond of play, a game at cards was proposed for his relaxation. As much as the experiments of pure curiosity seemed to annoy him, with so much the more ease and dexterity did he perform whatever gave him pleasure, and this he entered into of his own accord.

"One of the gentlemen present, M. Raynal, formerly inspector of the university, played a game at piquet with M. Petit and lost it. The latter handled his cards with the greatest dexterity, and without making any mistake. We attempted several times in vain to set him at fault, by taking away or changing some of his cards. He counted with surprising facility the points marked upon his adversary's marking card.

"During all this time, we never ceased to examine the eyes, and to hold a candle near them; and we always found them exactly closed. We remarked, however, that the ball of the eye seemed to move under the eyelids, and to follow the different motions of the hands. Finally, M. Bourdois declared that, according to all human probability, and as far as it was possible to judge by the senses, the eyelids were exactly closed."—Pp. 155—157.

This is an instance of what is termed lucidity or *clairvoyance* by the French reporters. A similar instance in England, but without the preparatory mummery, is quoted by Mr Colquhoun from the Morning Chronicle of March last, when a poor boy in the office at Bow Street so far convinced the magistrate of his powers of *clairvoyance* as to tell blind-folded the dates upon shillings and sixpences in a purse exhibited in court. The father stated that he had five children all gifted in the same way.

11. But all these instances are as nothing when compared with the miraculous powers attributed to somnambulists in the subsequent three cases detailed in the Report. These cases are intended to show, that not only can persons in this situation see without the medium of their eyes; but that they can discover their own internal ailments, prescribe *secundum artem* the proper remedies, and foresee the termination of the disease. Nay, more, the power of magnetic somnambulism extends further, and enables the subject of the treatment not only to see their own internal lesions, but, with anatomical accuracy, to detect deranged structure in the bodies of those with whom they are placed in magnetic connection.

The first of these cases was Paul Villagrand, who had suffered from a stroke of apoplexy two years before, and since that period had been under the necessity of using crutches. He was thrown into a state of somnambulism; in that state prescribed for himself; and predicted, which prediction he took care to fulfil, that he should return to bed without the use of his crutches. Paul also possessed, when under the influence of somnambulism, the power of *clairvoyance*, and his muscular strength was remarkably increased.

The next instance is that of Pierre Cazot, a hatter, twenty years of age, and subject to epilepsy. Treated as the others, he predicted the period of the fits, and the time when he should ultimately be cured. This last prediction was not destined to be fulfilled; for two days afterwards poor Pierre was killed in attempting to stop a spirited horse.

The third case is that of Mademoiselle Celine Sauvage, whose peculiarity was, that in magnetic somnambulism she was able to descant learnedly upon the diseases of the persons whom she touched, and to prescribe the appropriate remedies. For the details of the experiments on this person, which appear to be almost beyond the compass of belief, we must refer to the work itself. One of the cases was found on dissection to correspond with the annunciations of the somnambulist.

The Report is terminated with a series of conclusions, the result of the previous observations and experiments; and the whole is winded up with asseverations of the honesty and exactitude of the reporters in observing and detailing the phenomena, from which may be gathered that, if they were in any instance deceived, they accounted themselves "more sinned against than sinning."

"We do not, therefore, (say they) demand of you a blind belief of all that we have reported. We conceive that a great proportion of these facts are of a nature so extraordinary, that you cannot accord them such a credence. Perhaps we ourselves might have dared to manifest a similar incredulity, if, in changing characters, you came to announce them here to us, who, like you at present, had neither seen, nor observed, nor studied, nor followed any thing of the kind."—P. 201.

It is to be remarked, that MM. Double and Magendie did not sign the Report, not having assisted in making the experiments.

Such is the Report of the experiments on animal magnetism made by the committee appointed upwards of six years ago—laid before the Academy of Sciences in June 1831—and now first made public by Mr Colquhoun in an English dress. We have detailed the principal facts with some minuteness, to afford our readers the means of judging for themselves in regard to the miraculous powers claimed for this remedial agent.

Many of the effects observed are no doubt to be attributed, as the commissioners in 1784 observe, to the influence of imagination, imitation, and touch, on nervous and debilitated individuals; some may be conceived with probability to be the result of understood arrangements between the magnetiser and magnetised; and a third class bear on their faces marks of the strongest improbability. That the volition of one individual should put in motion the nerves and muscles of another individual—that ideas should thus be communicated from one to another by this medium alone—and that even his own internal structure, or that of another, should be seen with the mind's eye of a somnambulist,—are propositions which could scarely be expected to be believed upon almost any testimony; and hence perhaps the lentor or reluctance of the Academy to lay the report before the public. Were it otherwise, what an invaluable adjunct to our public hospitals would such a person as Mademoiselle Celine be, in detecting morbid structure, and pointing out the appropriate remedies! How infinitely superior her *clairvoyance* to the obscure indications of the stethoscope, and the painful study of symptoms and appearances! and what instructive materials might be thus furnished for comparison between the morbid structure in the living being and in the dead body!

It may be proper to notice here, that the power of imagination and sympathetic imitation in impressing the mind and producing convulsive motions in certain individuals, and particularly where numbers are assembled together, might have been illustrated from the meetings at Cambuslang in Scotland, in 1742,—from the religious camp-meetings of North America,—and still more recently, from the singular exhibitions in some of the chapels of the metropolis and elsewhere. And the history of the Nuns of Loudun might have been quoted, as affording an example of alleged demoniacal possession, got up for the purpose of deception, and where simulated appearances, not very different from some of those narrated by the French committee, procured the condemnation and execution of an obnoxious priest.

Upon the whole, we feel much disposed to adopt, as to this Second Report on Magnetism, the opinion expressed by the late Dugald Stewart as to the merits of the report of 1784, on the proceedings of Mesmer and his associates. "That these pretensions (says Mr Stewart), involved much of ignorance, or of imposture, or of both, in their authors, has, I think, been fully demonstrated in the very able report of the French academicians; but does it follow from this, that the facts witnessed and authenticated by these academicians should share in the disgrace incurred by the empirics who disguised or misrepresented them? For my own part, it appears to me, that the general conclusions established by Mesmer's practice, with respect to the physical effects of the principle of imitation and of the faculty of imagination, (more particularly in cases where they co-operate together,) are incomparably more curious, than if he had actually demonstrated the existence of his boasted fluid: Nor can I see any good reason why a physician, who admits the efficacy of the *moral* agents employed by Mesmer, should, in the exercise of his profession, scruple to copy whatever processes are necessary for subjecting them to his command, any more than he would hesitate about employing a new *physical* agent, such as electricity or galvanism."—Elements of the Philosophy of the Human Mind, Vol. iii. p. 221.

We now come to Mr Colquhoun's Appendix to this very amusing volume,—on the singular phenomenon of the transference of the faculties from their usual and appropriate organs to the epigastrium, and other parts of the nervous system, which has been occasionally observed to occur in cases of catalepsy and somnambulism. This forms an appropriate sequel to the French Report; and indeed the strongest testimony to this transference of faculties is derived from the cases of the reporters. Mr Colquhoun, whose industry in collecting materials, places the whole subject before his readers, commences with the case of Van Helmont, who, after tasting the root of aconite, fancied that all the cerebral functions were transferred to the epigastrium, or pit of the stomach. At the distance of a century and a-half, M. Petetin, a physician of Lyons, made experiments upon an cataleptic patient, which demonstrated that she could read with the stomach even through an intervening body. Eight other patients exhibited the phenomena of the transference of the faculties to the epigastrium, and to the extremities of the fingers and toes. Dr Joseph Frank's work, *Praxeos Medicæ Universæ Præcepta*, is quoted for a very curious case of catalepsy, where the patient heard through the medium of the stomach; and a number of similar occurrences are gleaned from different medical writers. The case of Miss M'Avoy of Liverpool, which excited some interest many years ago, is narrated to show that she could read by feeling the letters of a book with her fingers.

On the discussion of these cases, we do not now enter, and terminate a hasty analysis of this very curious and interesting book with the concluding sentences of the author, which we take in excellent good part, though subjecting us perhaps to one of the prescribed alternatives:—" If the phenomena observed are calculated to excite our wonder, and to call forth our scepticism, if they appear to be inexplicable and irreconcileable with any of our previous notions, let us remember that the cause of this may be found in the narrowness and imperfection of our preconceived systems; and this consideration should lead us to a careful review of the principles of our knowledge, rather than to an obstinate and irrational denial of the facts presented to us by experience."

ART. IV.—*Recherches sur le Mechanisme de la Voix Humain, &c.—Researches on the Mechanism of the Human Voice, a work which obtained a Prize from the Society of Physical and Chemical Sciences at Paris; to which is prefixed the Report of MM. Cuvier, Prony, and Savart, at the Royal Academy of Sciences.* By F. BENNATI, M. D., &c. Paris, 1832.

IT was not to be expected that a function so important as that of voice and speech, and which exercises an influence so remarkable and extensive on society, should, in the general progress of physiological experiment and research, be suffered to remain uninvestigated; and we accordingly find, that many distinguished anatomists and physiologists, during the last three centuries, have laboured assiduously to determine the exact part which each portion of the organs performs, to study the nature of the modifications which they undergo, and to explain the singular mechanism by which a set of organs, so simple in appearance and configuration, is made to produce effects so various, so complicated, and, in some particular instances, so wonderful.

In this inquiry, as in all others, it has not been always the simplest and most intelligible part of the process which has attracted most attention. Though this is the natural course of things, it is not always possible to recognize what is simplest; and attention is too often engrossed by that which is most striking, most complex, and most wonderful.

Voice, or expressed sound, may be said to be of two sorts;—inarticulate or mere voice, the formation and utterance of sound, which is formed in the *larynx*, that is, laryngeal or thoracic voice, and articulate, or oral voice or speech, or that species of interrupted or stopped sounds *(voces limitatæ,)* which are formed by the lips, tongue, and teeth stopping, as it were, and modifying the sounds formed in the larynx. Another distinction of much the same character, is one in which the popular notion corresponds pretty accurately with the scientific doctrine,—that of voice above the breath, or what may be styled, tracheo-laryngeal voice, which can only be formed in the windpipe and laryngeal chamber, and sibilous or whispering voice, or voice under the breath, (*sottovoce* of the Italians,) in which the individual speaks in a whisper, chiefly by the use of the lips, tongue, and teeth.

Both these sorts of voice, laryngeal and oral, have been most minutely and accurately studied by anatomists and physiologists; and the functions which the different portions of the organ performs in each has been assigned and explained with a reasonable degree of clearness and precision.

It has been shown that mere voice or uttered sound must be formed in the *larynx*, and cannot be perfect without the free and unrestrained motion of the *glottis*, the contraction of that aperture by its muscular apparatus, and without the forcible propulsion of air through it from the windpipe and lungs. It has been further ascertained, that if by any means the *glottis* is prevented from moving and vibrating to its due extent, the voice becomes low, suspirious, and extinct. It is known in the third place, that the larynx can only produce and utter *voice*, or vocal sounds, or those peculiar sounds unchecked and unstopped, which are denominated by grammarians vowels.

It has been shown in the next place, that to the formation of checked or stopped sounds, (*voces limitatae*,) so as to produce articulate speech, the motions of the tongue, teeth, lips, and cheeks, must variously concur; that as each predominates in checking them, a different sort of sound is produced, constituting respectively the gutturals, labials, and dentals of the grammarian; and that, according as each class of these parts concurs, the sounds thus formed are variously checked, so as to constitute those varieties which have been distinguished into mutes, explosives, nasals, liquids, and gutturals.

Both these departments of the mechanism of sound have been fully studied and elaborately explained; and the reader will find in the writings of Ammann, Haller, Soemmering, Blumenbach, Bichat, and Magendie, all the necessary steps and results in the inquiry.

Of a third variety of sounds, however, though very singular in effect and combination, the production and mechanism has been less investigated than the two already mentioned. We allude to what is named modulated sound, or the formation and utterance of musical tones in such succession as to bear certain harmonic relations to each other. This has been generally represented to be the result of the motions of the larynx drawn upwards and downwards by opposite forces, and made to vibrate with a greater degree of tension than during speech. The whole of the muscles of the larynx are supposed to be kept in action during singing, so that the larynx is accurately balanced between all, and the modulated sounds are produced not in a state of quiescence, but in a state of vibrating equilibrium.

Though this view, which is the opinion of Haller and Soemmering, and most other physiologists, is correct so far as it goes, it by no means embraces the whole subject, or explains all the facts. The ingenious author of the essay before us has shown very clearly, that, while the *larynx* alone, even in this state, is inadequate to the production of modulated sound, and requires the active and simultaneous concurrence of the tongue, cheeks, teeth, and lips, the process of singing would be still imperfect and extremely limited without the aid of the *uvula* and palate, and that the motions which these parts undergo, and the positions which they assume, not only concur powerfully to modify the whole of the modulated sounds produced by the *larynx*, but also are themselves essential in the production of the whole of those tones which ascend above the natural pitch of the *larynx*, or the notes which have been distinguished by the name of *falsetto*.

At this conclusion Signor Bennati has not arrived without infinite care and study in observing the motions of the *larynx* and tongue, the *uvula* and palate; and while he has investigated this part of the subject with the eye of the anatomist and physiologist, he has been enabled to pursue the inquiry with facilities which few physiologists can be supposed to possess, by being himself a very successful cultivator of the art, the physiological principles of which it is the chief object of the present Memoir to explain.

In order to understand the exact weight of the observations and arguments by which Signor Bennati supports the validity of his theory, it is requisite to follow him in his observations on the motions of the *larynx* in singing.

It has been admitted, that the contraction of the hyo-thyroid muscle taking place at the same time with that of the lateral crico-arytenoid muscles, of the oblique arytenoid, of the transverse arytenoid, and the thyro-epiglottic, must produce at once contraction of the *glottis*, abbreviation of the laryngeal and tracheal cavity, and depression of the *epiglottis*; and hence would result exclusively the production of acute sounds, the modulation of which would be owing to the more or less marked play of these parts united.

If, on the contrary, the contraction of the sterno-thyroid muscles take place simultaneously with that of the *crico-thyroidei*, or anterior dilators of the *glottis*, of the *crico-arytenoidei postici*, or posterior dilators of the *glottis*, it would effect the inverse of what takes place as to acute notes, namely, enlargement of the *glottis*, elongation of the cavity of the tracheo-laryngeal canal, and elevation of the *epiglottis*, and, consequently, the production of grave notes, the modulation of which will in their turn be owing to the action, more or less conspicuous, of all these parts in conjunction.

In this view of the action of the laryngeal muscles in the production and utterance of sound, Signor Bennati justly remarks, that the influence neither of the muscles of the *hyoid bone*, nor of those of the *tongue*, nor even those of the superior, anterior, and posterior part of the vocal tube, is taken into account. Some anatomists indeed have, in speaking of the laryngeal muscles, adverted, in certain cases, to the positions of the hyoid bone, in order to define more accurately the functions of several muscles of the *larynx*. Meckel, for example, when treating of the action of the hyo-thyroid muscle, says that it serves to elevate the *larynx*, when the hyoid bone is fixed above. But here, our author asks, is the function of the hyoid bone, or the modulation of the voice, confined to produce this contraction only of the hyo-thyroid muscle, or is it requisite to the constant and perfect action of the muscles of the *larynx?* This second proposition, with all its consequences, Signor Bennati not only admits, but adds, that the *hyoid bone is fixed* for every sound, in order to facilitate the contraction of the *larynx*, and consequently to elicit the notes. In point of fact, if the muscles of the hyoid bone are divided or paralyzed, the *larynx* left to the action of its intrinsic muscles would reach only *phonation*, by producing only imperfect sounds and monotones of less intensity and cracked *timbre*. These observations Signor Bennati assures us he has derived from experiments on different singing animals, and the phenomena of various pathological cases.

The muscles by which the hyoid bone is elevated are the *thyro-hyoidei*, the *mylo-hyoidei*, the *genio-hyoidei*, and the *stylo-hyoidei*, which act simultaneously with the principal muscles of the tongue, especially the *stylo-glossi*, which, at the moment of their contraction, are aided by the *digastric*, by means of an aponeurotic expansion, which, issuing from the tendon of these muscles, is inserted into the hyoid bone, and, consequently, elevates it. In this elevation the *genio-glossus*, the *linguales*, and the *hyoglossus*, concur. It would be convenient, however, to distinguish the last into its three portions, as Albinus has done, the *basio-cerato-chondro-glossus*, according to the office of the respective fibres. According to this division, the *chondro-glossus* is the portion which, with the other parts already enumerated, contributes most to the elevation of the *os hyoides*, and, consequently, to that of the *larynx*, or the modulatory action of the voice.

It is easy, therefore, to be satisfied of the influence of the tongue in modulation, by considering merely the relations between its muscles and the hyoid bone, and between the latter and the *larynx*. This conviction is further strengthened, by observing attentively the motions of the tongue in singing in different sorts of voice, when that organ is observed, during the utterance of acute notes, to contract on its base, and at the same time to widen; and in the most distinct part of the operation of the second register of the *soprani-sfogati*, its margins rise and form a semiconical cavity, with the apex corresponding to the tip of the tongue.

It is here necessary, however, to give some explanations regarding the different parts of the organ concerned in the production of different sorts of notes. Musical notes have in general been distinguished into true and false, or primary and *falsetto*. The names of these distinctions, Signor Bennati contends, are totally erroneous; and he proposes to distinguish all musical notes according to the part of the organ which is concerned in their formation. All the true notes, or those which are formed in the *larynx*, or at least in the chest, *trachea*, and *larynx*, he proposes to designate by the name of *laryngeal* notes, or notes of the *first register*. The higher notes, which correspond to what are popularly denominated *false* or *falsetto* notes, being produced chiefly by the superior part of the vocal tube, he denominates generally *supra-laryngeal* notes, or notes of *the second register*. Singers, who use much the notes of the second register, are usually denominated, in the language of the Italian opera, *soprani;* and as the notes of this scale have a certain range, those singers who at the middle of the second register of notes, can exceed the ordinary scale of the *soprani*, are denominated *soprani-sfogati*. Singers, on the other hand, who, in the acute notes, exceed at the middle of the second register the ordinary scale of tenor, are denominated *contra-altini-tenors*.

Now, in perfect *soprani* singers, that is, those endowed with a round sonorous voice, modulated almost exclusively by one register, the tongue assumes a position quite different from that which is observed in the *soprani*, with too distinct registers of notes. Instead of rising at its margins, and forming a semiconical cavity, it is raised, extended, and contracted towards the base, presenting a surface in the slightest degree rounded, in consequence of the depression of the margins. In some individuals, Signor Bennati has seen the edges of the tongue raised during the action of the first register, and particularly during the utterance of the laryngeal sounds of the *medium;* but this circumstance is less remarkable than that already quoted of the play of the second register in the *soprani-sfogati*.

Signor Bennati has further ascertained, by numerous observations on the organs of the best modern singers, that in general, for the production of grave notes, the action of the tongue is less marked, and it retains nearly its ordinary position and form, betraying only a slight undulation. In Mademoiselle Sontag, for instance, who at present displays the most striking example of acuteness, and modulatory facility in the notes of the second register, he observed this cavity to be more marked than in any other *soprano*.

A fact not less singular, is that in singers endowed with a very sonorous voice, and proceeding almost exclusively on a single register, the volume and dimensions of the tongue are greater than usual by a third, and sometimes more. This phenomenon is illustrated by the instance of Catalani, Lablache, and Santini. The tongue of the last singer, Signor Bennati states to be the longest and the broadest he has seen; that when the *genio-glossus* has attained its greatest contraction, Santini can touch the lower part of the chin with the tip of the tongue; and that in acute notes its tip is folded backwards in the shape of a hook.

Every one must have observed the singular grimaces and contortion of countenance which some singers, otherwise not void of agreeable features, occasionally exhibit in singing. These, as well as the motions of the lower jaw, with which they are often accompanied, Signor Bennati thinks he can connect with the internal play of the muscles of the *larynx*; and he has remarked the coincidence in so many cases, that though it m ay appear mere habit to a superficial observer, yet it is originally only one of the consequences of the ordinary mechanism of the vocal organs.

This opinion he founds not only on certain observations made on Madame Pisaroni, but on the example of a distinguished amateur, the Countess M. Having several times observed that this lady, particularly in singing a certain note, (*si be* flat,) inclined the mouth to the left side, with the purpose of inquiring whether this proceeded from bad habit, or was the result of the individual mechanism of the organ, he requested permission to examine the superior part of the vocal tube, while this lady was singing the note now mentioned. He then found, that the motion of the mouth and lower jaw depended on the mechanism of the tongue, which, instead of presenting the semiconical cavity in its middle, formed it on the left side; or, in other words, the hollow corresponded to the side to which the tongue was urged by the mechanism of its muscles.

He then adds, as a corollary to these reasonings, that it is chiefly by means of the tongue that the idiomatic peculiarities of different languages in singing are produced and uttered.

With regard to the action of the *stylo-glossi* muscles, which have been already said to be aided by the digastric by means of the aponeurotic expansion, the digastric during singing are also much contracted, as any one may satisfy himself, by placing the fingers on the region in which they are situate, when they appear to be no longer elastic, but are as stiff as a board.

On recurring to the *larynx*, however, Signor Bennati observes, we find that, in proportion as it ascends, it is restrained by the action of the lateral *hyo-thyroidei*, the oblique *hyo-arytenoidei*, and the transverse *hyo-arytenoidei*, the superior *thyro-arytenoidei*, and the inferior *thyro-arytenoidei*. At the same time, the *thyro-aro-et-glosso-epiglottici* contract, and shorten the laryngeal and tracheal cavity. In this case, by impelling air with more or less force, a sound is produced more or less acute, according to the vocal power of the individual, but which at a medium rate cannot exceed *sol*, the extreme limit, beyond which it is impossible to proceed by the sole aid of those muscles, which are now supposed to be in action.

Depression of the hyoid bone and *larynx*, on the other hand, is effected by the action of the *sterno-thyroid*, *sterno-hyoid*, and *crico-hyoid* muscles; and the *larynx* at the instant of modulation is enlarged at the same time by the contraction of the *crico-thyroid* muscles, or the anterior dilators of the *glottis*, and the *posterior crico-arytenoid*, or the posterior dilators of the *glottis*, by widening and elongating the laryngeal and tracheal cavity. Air impelled in this case produces a grave sound, but which, by the sole aid of the muscles now supposed to be acting, can reach at least to *do*, which is not a middle note of the scale.

It is, however, well known that the *contra-altini tenors* and the *soprani-sfogati*, can, in the acute notes, proceed as far as *upper sharp re*, and even higher, which embraces four notes more, or eight semitones; and it is also well known that *baritones*, or what Signor Bennati denominates *bari-tenors* and bass voices, can in grave notes descend as low as *sol*, or even lower, which comprehends four notes more, or eight semitones.

From these facts, Signor Bennati infers, that, since the *larynx*, whether it be elevated and contracted, or depressed and widened, is inadequate to a series of sounds so extensive, it does not constitute the whole vocal apparatus. Though this had been suspected by some physiologists, it has been proved by none; and even Savart, in his ingenious memoir on the human voice, has not gone beyond the precincts of the *larynx* in attempting to explain other modifications of sound. Gerdy alone has thought of studying the motions of the *pharynx*, *velum*, and *uvula*; but while his researches are posterior to those of Bennati, he has bestowed less pains in rendering them precise and demonstrable.

Signor Bennati, then, in order to explain these extremes of modulation, directs the attention of the reader to the superior part of the vocal tube, the action of which, he maintains, is solely employed in producing these elevated notes.

The first phenomenon that attracts attention in this inquiry is that in grave notes the soft palate is raised by the action of its *levator* muscle; and then by means of the contraction of the *internal* and *external peristaphylini*, by that of the *glosso-staphylinus* and *pharyngo-staphylinus*, of the *mylo* and *genio-hyoidei*, and even by that of the *palato-pharyngeal* and *stylo-glosso-pharyngeal* muscles, which operates at the same instant as the depression of the *larynx*, the *velum palatinum* is carried backwards, and assumes an arched shape. At the same instant the *uvula* retains its ordinary position, although by folding a little on itself, by the contraction of the *palato-staphyline* muscle, it becomes firmer, in consequence of its abbreviation, which carries the tip towards the base of the organ.

Nature, Bennati observes, appears to have thus arranged this part, in order that it might combine in grave sounds, either with the internal motion of the *isthmus faucium*, or with that of the *larynx*, for the purpose of allowing the air a free course, and giving more intensity of volume and force to the gravity of notes. In illustration of this view he refers to the fact, that, in order to produce vibration in the sonorous part, a great aspiration is requisite;—*first*, because grave sounds require a greater volume of air than acute ones; and, *secondly*, because expiration is regulated with so much more difficulty, as the vocal tube, having attained its highest degree of abridgement and widening, is in the least favourable disposition to prevent the issue of air.

Exactly the opposite state of parts is observed in the utterance of acute tones. The *velum* of the palate, after being raised, is depressed and carried forwards by the more energetic action of the muscles already enumerated in the modulation of grave notes, in which these muscles act from before backwards simultaneously with the depression of the *larynx*, while in acute notes the motion is from behind forwards, at the same instant at which the *larynx* is elevated. Eventually the tonsils appear to swell and approach mutually; the *uvula*, by the strong contraction of its *azygos* muscle, is entirely folded on itself, and in the most acute notes of the second register it disappears completely. The posterior aperture of the mouth has then no longer that arched shape which it assumes for the issue of graver tones, but the shape of a triangle slightly obtuse at its apex. To exemplify these changes, Signor Bennati assures us that singers with a voice of great compass, especially in the acute notes, for instance, the first *contra-altini tenors*, David and Rubini, and the most eminent *soprani sfogati*, as Mesdames Mombelli, Fodor, Lalande, Mesdemoiselles Sontag, Tosi, and others, present the upper parts of the vocal tube in an infinitely higher degree of developement and mobility than is common in bass singers, such as Lablache and Ambroggi. In Mad. Santini, especially, whose voice presents the greatest compass and the greatest descent, the posterior part of the mouth is very extensive and voluminous.

The same difference, though less perceptibly, may be traced between the *soprano* and the *contralto*. Among male singers the *bari-tenor*, and among females the *mezzo soprano* is the medium.

This difference in the parts employed in different scales of notes is further illustrated by the different sort of fatigue experienced by singers whose voice consists of two registers, and by those whose voice extends only to common bass, contralto, or bari-tenor.

Thus Mesdames Mombelli, Fodor, Sontag, and Tosi, among the *soprani-sfogati*, David, Rubini, Gentili, and many others, among the *contra-altini tenors*, are never so much fatigued as after having sung parts in which the play of the notes of the second register is most frequently employed; and this sense of fatigue is exclusively confined to the parts constituting the superior extremity of the vocal tube. Excessive exertion of these parts would produce either feebleness of their nervous system, or a degree of inflammation which might be communicated to the wind-pipe, but rarely attacks the bronchial tubes, lungs, or pleura. On the other hand, Lablache, Galli, Ambroggi, Santini, Nozzari, Crivelli, Mesdames Marianni, Catalani, and several other singers, in whom singing is confined to the working of the first register, almost exclusively, although their voice is of a very different character, feel fatigue most in the thoracic and diaphragmatic regions. Perseverance in singing after a certain point might assume an inflammatory character, and soon terminate in tracheal or bronchial inflammation, or peripneumony, or pleurisy.

It is of great practical importance, Bennati adds, with a view to treatment, to observe, that in this second class of singers, debility of the nervous system of the parts constituting the upper end of the vocal tube is very rare. When they are merely injured by excessive fatigue, the use of astringent gargles, and the external application of camphorated spirituous frictions, may accelerate the cure, which rest alone can at length complete. But as debility of these parts may readily assume the aspect of inflammation, it is necessary to take care not to be deceived in diagnosis, because employing antiphlogistic treatment, either general or local, in a case of mere debility, would aggravate the disease, and might even induce complete *aphonia*, of which several celebrated singers in our time have become victims.

This conclusion is illustrated by the fact, that David and Mademoiselle Tosi almost lost their voices by means of a treatment opposite to the pathological state of their organs, and that Madame Mainvielle Fodor has by treatment carried still farther, for several years almost irrecoverably lost the great compass and power of her voice, and though she occasionally sings in public, it is with incomparable less power and beauty than formerly.

The same doctrine is further confirmed by the effects of disease taking place in the mouth or throat, and affecting eventually the musical part of the tube. In this case Signor Bennati has observed that it not only impairs the *timbre* or pitch of the voice, but even diminishes the number of simple tones previously possessed by the individual.

In short, the theory of Signor Bennati is explicitly and briefly the following. The *larynx* possesses the power of emitting notes of a certain height in the scale; but after it has attained, in the utterance of these notes, the highest point susceptible of distinct well-formed sound, it ceases to produce notes by its own efforts, and every attempt to make it do so, causes it to emit a base, or stifled, or imperfect sound. The *larynx*, however, having attained this point, seems to become fixed, and to procure the voice a new diapason or register, the notes composing which are produced by the operation of the muscles of the soft palate, *uvula*, tongue, and the approximation of the pillars of the throat, as well as by the contraction of the supra-laryngeal muscles enumerated above; and the sounds will be grave or acute, in the direct or inverse ratio of the approximation of these parts. In well-constructed and well-trained throats, these sounds will be clear, distinct, perfectly formed and melodious. In throats of imperfect construction, and less completely educated, they are not only less distinct and perfect of themselves, but they are rendered confused and discordant by the harsh and jarring tones of the *larynx*, still excited beyond its powers. Its function is therefore, he infers, merely secondary, in the production and utterance of supra-laryngeal notes. When, indeed, the *larynx* does more in the production of these notes, it appears to be detrimental.

It deserves particular attention, that the distinction thus made between the notes formed by the *larynx* alone, and those formed by the upper part of the throat, is accurately observed in popular usage by the Italians, who designate the former as *la voce di petto*, or thoracic voice, and the latter, as *la voce di testa*, or voice from the head. This distinction has originated chiefly in the circumstance, that if any one possessed of the ordinary musical voice runs over the scale from the low notes to the high, he will perceive that all the notes from low B or C to E or F tenor are formed in the windpipe and *larynx*; and that all the notes above the latter, or even before that, according to the voice of the individual, are formed in the posterior cavities of the head and throat.

To add stronger confirmation to the inferences at which Signor Bennati has arrived regarding the functions of the *velum*, *uvula*, and *isthmus faucium*, in the production of the very high notes, he gives several facts from pathology,—singular enough, we confess, and though capable of occurring to none except musical physicians, deserving to be known.

1. M. Koreff, a friend of Bennati, had occasion to treat M. the Prince M. for an abscess in the tonsillary region, which, though requiring to be punctured or touched with caustic, could not be seen for that purpose. After employing all the usual contrivances, and especially the introduction of a spoon, which excited violent retching, M. Koreff thought of requesting the patient to sing the most acute note which the pitch of his voice could reach. Instantly the upper part of the vocal tube was thrust forward; M. Koreff availed himself of this position to apply the caustic; and the patient was relieved at the end of a few hours.

It is not impossible that this relief would have ensued in *cynanche tonsillaris*, at any rate and under any treatment. But we do not wish to depreciate excessively the value of the illustrations of the ingenious author.

2. The Count de Fredigotti, unfortunately cut off in the prime of life, was not only one of the most accomplished amateur singers, but perhaps the greatest and most fastidious connoisseur of our times. Unfortunately, however, this nicety of judgment had shown him that a physical defect presented an insuperable impediment to his voice ever attaining that perfection of art which his ear told him it ought to possess. He consulted a celebrated French surgeon; and by his advice, he determined to submit to the extirpation of two-thirds of each tonsil, with the sole intention of giving more clearness, more compass, and more facility to that bari-tenor voice from which he expected to derive so much celebrity. He underwent the operation at Paris; but the result was contrary to his expectations. The thoracic voice that is the voice which, according to the notions of Signor Bennati, is modulated particularly by the action of the laryngeal muscles having acquired a clearer and sounder *timbre*, was enlarged by the addition of two notes; but in compensation, four supra-laryngeal notes, or those of the second register, were irrecoverably lost. Upper sharp *do* alone was marked very imperfectly,—which proves, Signor Bennati contends, that the upper parts of the vocal tube being imperfect, could produce only an imperfect sound. This note had been easily produced by means of the posterior oral cavity previous to operation; but it is impossible to imagine the difficulty with which it was uttered afterwards. The Count could not then produce it without prepara-

tion, that is, he was obliged to make a deep aspiration, expelling the air with such violence, that his efforts were depicted in every feature.

From this fact, the Signor thinks he is warranted in drawing the inference, that this imperfect *do* which the Count had so much difficulty in uttering, was not a note of the second register, but the last laryngeal sound.

3. At the time of writing the memoir before us, Signor Bennati had under his care, M. Carcelli, a young pupil of the Conservatory of Milan, in whom, in consequence of a tonsillary *angina*, the tonsils had become so bulky that he became unable to sing, by reason of his voice, which previously possessed the ordinary extent of tenor, losing its sonorousness and its compass, and reaching only sharp *re*, while upon the second register he could mark five notes more than formerly.

Bennati, who was consulted and was desirous to avoid operation, wished to see if, by means of astringents alone, he could improve the *timbre* of the voice, and enable this young man to give some more laryngeal notes. At the end of fifteen days, Bennati had effected a remarkable change in the intensity and sonorousness of the *timbre*, and had even succeeded in enabling him to reach the sharp laryngeal *fa*. The patient, indeed, had recovered two notes or four semitones; while the notes of the second register which he had acquired in consequence of his accident he still retained.

4. To show the remarkable power of the *uvula*, and that this part must contract almost to obliteration in some of the high notes, for instance *re* or *mi*, Signor Bennati appeals to the phenomena of disease, in which part of it has been removed, or has become paralyzed, and relates the following case.

In August 1830, a *contra-altini tenor*, M. Giovanni Boccaletti de Bergamo, was attacked with hemiplegy of the left side. In consequence of this disease, the *uvula*, in the supra-laryngeal notes, ceased to contract, unless imperfectly on the right side, and, nevertheless, the contraction of the muscles of the *isthmus faucium* and of the *velum*, was always effected as in health. M. Boccaletti, however, was no longer able to utter any of the supra-laryngeal notes which he sung before his disease with so much facility and sonorousness.

Signor Bennati concludes his memoir with some judicious practical observations on the changes which the voice undergoes at puberty,—one of the most conspicuous periods of its developement.

It is well known, that at this period a general revolution takes place in the organ of voice, which then commonly loses in men a whole octave, unless by a morbid cause, general or local, the parts which concur to the production of voice are enfeebled. This debility may also proceed from the practice of singing, which is very dangerous at this critical instant, since it may injure the developement of the organ, either by inducing partial or total palsy, or by causing inflammation, of which the extreme degree of intensity may end in complete *aphonia.*

Though the explanation of the mode in which this injury takes place may be doubtful, or, perhaps, limited in application, the result is certain; and there are few instances, in which, if the individual persists in singing at the period of puberty, the voice is either not much injured, or is broken, as is vulgarly said, or irreparably lost. Instances are common; but among those distinguished for good voices they attract most attention. Bennati mentions the comparative one of Donzelli and Donizetti, one of the fellow pupils of the former, and brother of the *Maestro.* In both these singers the voice began to change at the same time. Donizetti continued to practise; and the result was the loss of his voice. Donzelli, on the other hand, who, by the advice of his instructor, refrained from singing the whole time of the change, acquired one of the most perfect organs in modern times.

Among those individuals who have early devoted themselves to singing, and especially in boys who, previous to the age of puberty, sang *soprano* or *contralto,* we observe after that period the simultaneous but independent action of the two registers, and the more regular developement of the superior region of the vocal tube, but more or less marked according to the kind of voice. The voices of David, for instance, of Rubini, and of Donzelli, which have passed through these transitions, present the most remarkable extent of the two registers. In Donzelli, however, though he can reach the upper sharp *re,* the modulating faculty, particularly in the notes of the second register, is infinitely more laborious and restrained than in the other two. In compensation, his laryngeal notes are greatly more sonorous and rounder than those of David and Rubini. The difficulty experienced by Donzelli is inherent in the sort of voice which he possesses, that is a bari-tenor, which generally consists of one register only. In Donzelli there are two registers, because he devoted himself very young to the practice of singing, and consequently early subjected to the spontaneous power of the will those muscles, which, before the age of puberty, obeying the internal and successive motion of the *larynx,* form only a single register. Meanwhile, the action of these same muscles being most conspicuous, while the hyoid bone and *larynx* are fixed above, concurs, with the parts of which the upper chamber of the vocal tube consists, to form the register now mentioned.

Of the same fact, the case of Signor Bennati himself presents an example. Early devoted by pleasure and taste to the study of singing, he possessed a well-marked *soprano* voice. At the period of change of voice, which took place at the age of fourteen, his master interrupted his lessons for several months. At the end of this interval, he observed that the voice of his pupil sank exactly one octave; but perceiving that Bennati still reached, though imperfectly, some of the sharpest notes, which he characterized as *falsetto*, he recommended the Signor to practise gradually and without effort, assuring him that these attempts would at length procure a second register, which, though distinct, would coalesce with the first, and greatly extend the compass of the voice.

By this moderate and graduated study, Signor Bennati succeeded in effecting the developement of an organ which marks successively or separately three octaves.

The application of these principles Signor Bennati thinks may be of great service in conducting the voices of singers, and especially in managing the voice in those who have naturally good musical tones previous to puberty. A general and vague idea of the hazard of cracking the voice exists, if singing is much practised at the period of puberty; and there is no doubt, that the instances of irreparable injury done in this manner to the finest voices, are sufficiently numerous to justify the conclusion. The reason is the following. When the period of puberty approaches, the *larynx* and its parts assume a sudden increase of size, with a corresponding increase in the developement of its vascular system, and the quantity of blood transmitted to it The thyroid cartilages, especially, become much larger, and, acquiring a remarkable increase in antero-posterior diameter, form before a more acute and prominent angle than formerly; the arytenoid cartilages are enlarged and elongated, and necessarily render the vocal chords larger and stronger, and give the aperture of the *glottis* a longer antero-posterior diameter, and greater extent of motion; the hyoid bone also becomes much larger in all its dimensions, and acquires a greater extent of motion; in short, the whole cavity is enlarged, and all the constituent parts are more distant from each than formerly, and indeed change their natural relations. Hence the tones, that previous to these changes were, though soft, feeble, and of a higher key, yet distinct, complete, and well-formed, are now broken, confused, jarring, and irregular. One tone perhaps retains part of the original high key because the particular part of the *larynx* and *glottis* necessary to its production is not much changed. Another tone is uttered in a much deeper key, because the parts necessary to its production have been partaking of the general enlargement, and because the laryngeal cavity is already somewhat enlarged in dimensions. A third sound is uttered in a harsh, husky, and jarring tone, because all the parts concerned in its production are irregular in their mutual relations to each other, and are thereby incapable of acting in unison or harmony with each other, one part being in the state to emit a base or strong tone, another a softened or more delicate note. The whole voice, in short, is harsh, husky, irregular, and untunable, or, as Signor Bennati would term it, atonic, that is void of tone.

If at this particular period, therefore, the individual persists in using it in the high degree of tension necessary to singing, while the parts in their new process of developement are only acquiring strength; and while, in consequence of the unusual afflux of blood necessary to accomplish this object, they are still preternaturally sensible and easily susceptible of inflammation, he is almost certain to induce partial inflammation of the mucous membrane and submucous tissue, and thereby to destroy the mobility, the vibratory power, and consequently the vocal utility of the organ for life; or, by putting the delicate and susceptible muscles in a degree of tension too great, he may impair both their structure and also their properties so much, as to render them ever after incapable of free and accurate voluntary motion.

In the course of four or five or six months, however, in most cases, and in the very longest at the close of twelve months, the process of developement is completed; and the impuberal voice is converted into that of puberty, in which all the tones are deeper, in general by an octave,—fuller, and greatly more powerful,with the loss, however, in the meantime of all the *soprano*, or supra-laryngeal notes. If singing be now attempted, the individual can with facility in general, and great clearness, perform all those pieces in which the notes do not require him to ascend above the ordinary pitch of the laryngeal notes. If he does, he utters only falsetto notes, which are easily recognised to be such by very superficial judges.

It appears, however, from the observations, and from the personal experience of the present author, that there is a particular case in which a male singer may acquire a supra-laryngeal voice so excellent, that the falsetto notes cannot be detected unless by ears very experienced and refined. If the singer has been accustomed before the puberal change to cultivate this part of his organ, and to sing easily the very highest notes, by observing the rule of refraining from the use of the voice during the period of change, and allowing every part of the organ to acquire its proportionate perfect developement, so that every part harmonizes in size, mobility, and power with the others,—and then, by gradually beginning to attempt the high or *falsetto* notes, he will at length succeed in acquiring a second register, as Bennati styles it, so perfect and so extensive, that it will be difficult to trace the transition from the laryngeal to the supra-laryngeal notes.

To the perfect attainment of the object now mentioned, the condition of previous cultivation of the superior part of the vocal tube is rendered indispensable by this circumstance, that without this precaution the muscles concerned acquire their just size and strength without having been habituated to those nice and complicated, as well as extended motions which are requisite for the clear utterance of the very high notes. It is so necessary to acquire this modulatory power in early life, that many singers, whose voices in the laryngeal notes are most perfect and beautiful, cannot utter a single supra-laryngeal tone, which is not hideous. Thus Crivelli, a very superior *bari-tenor* singer, who, however, had not devoted himself to the art before his thirty-second year, though with an admirable laryngeal voice, has never been able, notwithstanding numerous efforts, to acquire a single note in the second register.

There is, however, another point in this matter of the utmost practical importance in the education of young persons with good musical voices. We have already adverted generally to the apprehension of breaking or cracking the voice by premature efforts; and in observing the condition last specified, in wishing to procure a pliant and extensive voice, it is of the utmost moment not to allow the exercise of it to be carried so far as to fatigue, enfeeble, or otherwise injure the organ. The great point is simply to practise singing so much as to give the organ pliancy, mobility, and elasticity sufficient to enable it by easy habit, to emit all the varieties of modulated sounds of which it may be naturally susceptible. But in practising with the view of communicating these qualities, care must be taken not to exert the organ or any of its parts beyond its powers. The effect of such exercise is either extreme weakness of the organ, or total defect of musical voice after the age of puberty. Hear what this experienced observer says on this topic.

"I would venture to affirm that the lack of voice, of which complaints are often justly made, between the fifteenth and twentieth years, is primarily derived from the irrational direction which is given to the vocal organs of children, in whom often the most fortunate organic dispositions are rendered abortive by exercises not only premature and beyond the vocal reach of the individual, but the most part of the time, contrary to the principles of vocalization, which possesses a modulatory peculiarity quite distinct from that which belongs to an inorganic instrument.

"It is so much less a matter of indifference to cause young pupils sing every kind of music, that many composers even of the greatest celebrity, have confounded the attributes of voice with those of instruments. It is indispensible to exercise pupils only in that which has been composed as most characteristic and best adapted for vocal modulation, that is, with the method of singing adopted by the great Italian school, which has at all times produced the most accomplished singers. I fear not to be accused of partiality when I quote the names of Crescentini, Pachierotti, Marchesi, Guadagni, Mombelli, David the father, Viganoni, and in our own times, Garcia, Barilli, Pasta, Mombelli, &c. If, as is proved by the most striking examples, the continued execution of certain lyrical compositions is adequate in a short time to inflict the most serious damage on the organs of performers whose voice is fully formed, how much more likely will the practice of the same music be to injure the slender and delicate chords of a young adolescent person."

It would be extremely idle to deny that these observations are dictated by reason and experience; and if they were more frequently made the basis of directions to young persons in the use and cultivation of their vocal powers, fewer instances of disappointed hopes in young singers of great promise would occur when they grew up to manhood. It is matter of frequent observation, that these disappointments are much more common in the case of males than in that of females; and it is doubtless owing to the greater chance of injury or total destruction of the voice in the former than in the latter sex, in consequence of the extent of the organic and dynamic changes in the *larynx* of the former than in that of the latter, that this comparative disproportion takes place.

It must not be imagined, nevertheless, that ladies will be altogether exempt from the same cause of injury. In the female, when she approaches the period of puberty, the *larynx* undergoes a change similar in kind, though less extensive in degree. While in the male the whole *larynx* is enlarged, the thyroid cartilages acquire a great degree of antero-posterior diameter, and the hyoid bone becomes much larger in all its dimensions;—in the female the thyroid cartilages are united at a more obtuse angle, are smaller generally, and possess less antero-posterior diameter; the arytenoid cartilages are smaller, so that the vocal chords are smaller; and the whole *larynx* is comparatively less capacious. In the female, however, the cavities of the *fauces* are more capacious and extensive comparatively than in man; and this seems to be one reason why the voice is capable of notes of so much higher key than in the male.

These changes, therefore, though taking place in the female to less extent than in the male, nevertheless do occur; and they are connected with changes in the volume, the strength, the *timbre*, and the compass of the voice. It is of the utmost consequence to the possession of a good voice, and a set of clear and powerful tones, that the voice be merely cultivated, and gently exercised, not fatigued, overpowered, or enfeebled, not only before puberty, but during the change, and for some years after. By observing this rule, we should have fewer complaints of young ladies who have sung well when mere girls, but lost their voice on growing up. The loss in such a case depends on premature and excessive efforts, by which the organ has been strained beyond its pitch ere it had attained the full measure of its strength, or the voice had acquired all its compass and intensity.

We have given the foregoing sketch of the physiological views of Signor Bennati, with such explanations and illustrations as we deem necessary, either to explain his peculiar doctrines, or to make them accord with the other established opinions on the uses and offices of the *larynx*. We rarely express any opinion on the exact merits of the conclusions drawn by any inquirer. But we find, on looking over the foregoing observations, that, in the attempt to render the doctrines of Signor Bennati intelligible, we have virtually identified ourselves with these doctrines.

This renders it necessary to observe, that we think that the present author has completely succeeded in showing the important part which the *velum*, *uvula*, and even the tonsils perform in the production of the high or *falsetto* notes, or those which the author denominates *notes of the second register*. Lest, however, we should be misunderstood, we must add that it further results that the action of these parts would be useless without the *glottis* and *larynx*, and, above all, without the *hyoid* bone. Let no one, therefore, imagine that Bennati has deprived the *larynx* and *glottis* of its power as a vocal organ. He has only shown the limits of those powers, the mode in which they are modified, and the means by which their deficiencies may be supplied.

It is even no inconsiderable proof of the merit of Signor Bennati,—that M. Gerdy, who is favourably known for his researches in some original points of anatomy and physiology, has made a sort of claim of coetaneous, but inconscious research and discovery on the same subject. M. Gerdy, however, we have already said, seems only to have discovered part of the truth, and overlooks very much the motions of the *uvula* in the formation of the more elevated notes.

Lastly, we think that Signor Bennati has rendered an important service in directing attention to the functions and motions of the hyoid bone in singing. While it is certain that this bone changes its position in almost every note, its office in this respect appears to have been entirely overlooked till pointed out by the present author.

Art. V.—*A Practical Account of the Epidemic Cholera, and of the Treatment requisite in the various modifications of that Disease.* By William Twining of the R. C. S., London; First Assistant-Surgeon, General Hospital, Calcutta. London, 1833. 12mo. Pp. 292.

Notwithstanding the multitude of books which have recently issued from the press on the subject of cholera, and our determination no longer to tire the patience of our readers with this interminable subject, we feel compelled to swerve from our resolution once more on the present occasion, for several reasons, of the validity of which we leave our readers to judge.

In the *first* place, the present small volume forms part of a larger and more comprehensive treatise, which it was the expectation of the author to publish on the Diseases of India generally; and as this would necessarily be rather long in appearing, he was anxious to accelerate the publication of the section devoted to cholera by transmitting it to London last season, in consequence of the prevalence of the disorder in this country at that time. Though it is almost needless to say that the work was too late for the purpose of the author, yet, as part of the treatise alluded to, and which, we are happy to say, has now reached this country, it is entitled to some attention. In the *second* place, the work issues from the native soil of the malady which forms its subject, and contains, in a small compass, a number of important facts, which, though perhaps adding nothing very new to the stock of information, certainly render it much more precise and specific than heretofore. On the present occasion, therefore, we shall select for observation those points in the essay which appear most to deserve attention.

Cholera continues to attack in India in various modes. Most frequently, indeed, it appears in a violent form between the hours of two and five in the morning, in the shape of profuse and repeated vomiting and purging, followed, in the course of three or four hours more, by the usual symptoms of collapse and death.

In other instances, however, it comes on like a febrile attack, with heat of the surface, quick pulse, thirst, wandering sensations of heat and cold, and diarrhœa, lasting for a day or two, or even dysenteric symptoms, or with catarrh, *nausea*, and epigastric oppression. But all of a sudden, in the midst of these complaints, the surface becomes chilled and clammy, the pulse sinks, the voice fails, and numerous watery stools, with vomiting, indicate the establishment of genuine choleric symptoms.

In other instances, again, the disorder supervenes on continued or remittent fever, the patient very rarely being affected with vomiting or cramps, but merely becoming suddenly cold, and voiding a single choleric stool, or even without this symptom taking place.

It is evident, nevertheless, that in cases of this class, the action, or rather deficiency of action in the system, is the same, only modified by the extreme weakness induced by the previous disease; for it appears that the fluid, which was not sufficiently abundant to be discharged, was nevertheless found in the intestinal tube; since Mr Twining mentions, that after the sudden death of fever patients in this manner, he found the intestinal coats thickened, and lined with the whitish mucus and thick white paste usually considered characteristic of cholera, and the cavity loaded with pale watery fluid like rice-water.

The manner in which the disease advances, leads Mr Twining to distinguish it into two varieties, both important in regard to therapeutic measures respectively required by each. The first is the congestive, blue, and rapid form of cholera, which generally comes on rapidly without premonitory symptoms, as already stated; the second is the febrile or inflammatory, which advances more slowly and gradually, and is always introduced by some of the febrile symptoms above-mentioned.

He thinks, indeed, that when cholera prevails epidemically, its principle gives rise to a great variety of disorders of the alimentary canal, all of which might be classed in the same scale. Some of these partake so much of the febrile and inflammatory character, as to be with justice regarded as gastro-enteric fever, congestion, or inflammation; and others consist of such extreme depression of the vital actions and congestion of all the internal organs, without being preceded by active or evident morbid action, that they must be viewed as the result of an immediate extinction of the vital principle. Between these two extremes, however, there are innumerable shades of variety; and in some instances in Bengal, Mr Twining remarks, one set of cases are observed to pass imperceptibly into the others, or cases occur in which the two extremes are combined, or imperceptibly blended.

Thus, in the upper provinces he met with many instances, in which Sipahees, who marched from the camp early in the morning quite well, suddenly fell to the ground with violent spasms and cramps of the extremities, and in whom vomiting, purging, coldness, and all the worst symptoms of cholera ensued quickly.

These varieties in the mode of attack, and the progress of the disease, are connected more or less closely with the circumstance of the beginning, the middle, and the close of an epidemic. At the beginning of every epidemic visitation in Bengal, a large proportion of the earlier cases are usually of a very violent and rapid character, with tendency to early accession of coldness, torpor, and collapse, and many of these proceeding rapidly and irresistibly to the fatal termination.

Mr Twining has subjected the choleric discharges to the action of several reagents; and the results lead to the inference, that the whitish discharges do not consist of serum of the blood, but chiefly of mucus. Thus, when the thin fluid decanted from the flocculent precipitate is exposed to heat, even at the boiling point, it does not coagulate; when treated with alcohol, it does not coagulate, unless in a few rare cases; and oxymuriate of mercury causes only slight cloudiness; while solution of acetate of lead causes a dense curdled precipitate. Mr Twining adds, that he has found in the same patient the stools not coagulable by heat, and the blood separating a quantity of serum which coagulated firmly; and he also remarks, that the occasional presence of acid in the choleric discharges, while serum is almost invariably alkaline, is another proof against the idea of their mere serous composition.

The account which Mr Twining gives of the appearances disclosed by dissection does not differ materially from that given by others, and which many of us have had ample opportunities of witnessing in this country. It is therefore unnecessary to do more than refer the reader to the description (p. 45), which he will find to be accurate and faithful.

One circumstance, however, is so remarkable, that it deserves special notice. It was a common occurrence to observe in the cases of reaction here, and even in some of those who died at the end of a long period of collapse, much subarachnoid effusion in the cranium, and in the spinal canal, and serous fluid effused in the cerebral ventricles. This appearance Mr Twining observed very frequently in the bodies of seamen attacked by cholera in the Bazaars, when they had been much exposed to the sun, and addicted to habits of dissipation; and even in the bodies of sober persons, who had been much exposed to solar heat. Patients of this description generally sunk soon into a torpid state without suffering from spasms, and becoming quickly cold, died within fifteen or sixteen hours from the commencement of the attack. These circumstances, symptomatic and pathological, were distinctly exemplified in many of the crew of the H. C. Ship Bridgewater, and repeatedly in the crews of vessels working up the Ganges.

On the subject of the causes of the disease, we find the same acknowledgment of ignorance with regard to the nature and operation of the general cause, as is made by former authors, and by observers in the different countries of Europe; and the same illustration of the operation of deleterious agents on individuals, or classes of individuals.

Thus the author begins by observing that nothing is known of the causes which have rendered the disease so much more frequent in India during the last sixteen years, and nothing of the circumstances by which an attack of the disease may be guarded against and repelled. It occurs at all seasons of the year, and under all circumstances, and attacks persons living in the most comfortable houses, avoiding all excesses, and sheltered from every sort of privation. Among other cases, a very remarkable example of this is given in the 5th, at p. 22. A lady of twenty-six, in apparent perfect health, who had been fifteen months in India, was attacked by vomiting and purging at three P. M. on the 2d September 1825, speedily followed by spasms of the extremities; at five, collapse was so intense that life was despaired of; and death actually took place the same evening before daylight ceased;—the disease thus running its course within six hours.

It is, nevertheless, invariably remarked, that the disease is at once most prevalent and most virulent among persons residing in low ill-ventilated situations, exposed to atmospherical humidity, and great and sudden vicissitudes, living on bad or ill-dressed food, and frequently indulging in cold and unripe fruits. These circumstances are chiefly applicable to natives. Europeans who have recently arrived, are represented by Mr Twining to be more liable than those who have been long in the country, especially if they reside first in a locality in which the disease is obviously prevailing endemically, or arrive at a place where it is epidemic.

In illustration of the influence of sudden decrease of temperature in producing attacks of cholera, Mr Twining, besides referring to the oft-repeated observation of the frequency of attacks between two and five in the morning, when the atmospheric temperature is at its *minimum*, mentions the similar fact, that men are often attacked after exposure to rain when fatigued, after sleeping in damp clothes, or after fording a river early in the morning, especially if this has been preceded by a march of several miles, or after encamping on the low damp bank of an oozy rivulet.

Ebriety, and the disorder either of the general system or of the alimentary canal, resulting from the use of intoxicating liquors, has been every where observed to be a very powerful exciting cause of this disease. Its influence is well illustrated by the following fact. In 1828, a sum of 15,000 rupees of prize money was distributed to the soldiers of H. M. 14th Regiment at Berhampore. A good deal of indulgence was the immediate result; and within a few days ninety-four cases of cholera took place in the regiment, of whom twenty-four terminated fatally. Of these ninety-four patients, forty-five had been from nine to fourteen years in India. Since, however, soldiers and seamen often drink to excess in India, even so as to produce sickness and vomiting without inducing this disease, Mr Twining infers that some general cause must exist. It is, indeed, to be particularly observed, that a party of soldiers or seamen may drink to excess, and indulge in other irregularities in India repeatedly; and, at one time, only the usual debility of the debauch ensues, at another, several are attacked with remittent fever, and at a third, many of them with cholera. These facts show clearly that the disease requires some peculiar state of the atmosphere for its production.

It has been an apprehension somewhat general, both among Indian and European practitioners, that attacks of cholera might be induced by the use of certain purgative medicines during the epidemic prevalence of the disorder. It was said, that in the epidemic cholera which attacked the detachment of 5000 Bengal troops under Colonel Pearse in 1781, on the march to the coast through the Northern Circars, there was reason to believe that tartrate of antimony, which was given freely, rather aggravated the disease, precipitated the fatal event, and increased the mortality. It is singular, notwithstanding, that this agent has been used as a remedy in some parts of Europe.

On the effects of the saline and some other purgatives, Mr Twining gives some interesting facts, which deserve to be known. A gentleman, in the general enjoyment of good health, regular and moderate in habits, twenty-eight years of age, and five years resident in Bengal, awoke on the morning of the 18th March 1830, with a slight feeling of uneasiness, which he imputed to indigestion, and with the view of removing which he took a small dose of Epsom salts. Nausea soon ensued; then vomiting of fluids drank; and quickly the extremities became cold and shrivelled, the voice weak, the countenance livid; the eyes sunk, and the pulse feeble and indistinct. Only four stools took place from the commencement of the attack, the first two very copious and like gray water, the other two scanty and of a pale drab colour; and after much anxiety, thirst, and occasional slight cramps, death took place at four P. M., nine hours after taking the salts.

To the same effect, Mr Twining states, that he has known more than one case in which persons feeling slight indisposition have taken a dose of rhubarb and magnesia with ginger early in the morning, after which distinct choleric symptoms ensued with the first purgative effects, and the disease terminated fatally within twelve hours. Mr Twining, indeed, admits, that it is probable that an insidious or latent attack of cholera was going on in the system in such patients, before the medicine was taken, and that it was thus hurried into manifest action; and, therefore, he recommends that the drastic purgatives, as salts, senna, and jalap, should not be freely and indiscriminately administered at periods when cholera cases are frequent. So far even does this principle operate in Calcutta, that, according to Mr Twining, the practitioners are averse to the exhibition of medicine which is likely to act on the bowels between the hours of two and five in the morning, and hesitate even giving calomel and colocynth at bed-time in fever cases, from apprehension of this evil. It is, nevertheless, remarkable, that he knew no instance of an attack being imputed to a dose of castor oil.

The effects of excessive fatigue, especially under exposure to the operation of bad weather, are illustrated by the cases of the two vessels, the H. C. ship *Bridgewater*, and the French ship *Victorine*. In the former case, the crew had been exposed to very hard work under severe privations, during a succession of hard gales, on the homeward voyage from China; and the vessel was so much damaged that it was necessary to bring her to Calcutta. Soon after the crew landed in June 1830, many of them were attacked and cut off by cholera.

The case of the *Victorine* was still more deplorable. This vessel, which had been on a trading voyage, had proceeded first to Peru, and brought thence a cargo of copper to Calcutta, where she arrived in October, occupying on the whole voyage twenty-two months. On arriving in the Ganges, the crew worked very hard for fifteen days in landing the cargo, and were necessarily much heated and drank much water. At this time many were suffering from diarrhœa; but on the 24th several of them presented distinct symptoms of cholera, with great marks of debility. Nine men were brought ashore; one died during removal, another was found dying when he was removed from the palankin at the hospital; the other seven were in complete collapse, and four of these died.

For the details of the treatment, which Mr Twining modifies according to the kind of attack, we refer to the work itself.

The observations on the question of the contagious or non-contagious character of the disease possess a peculiar degree of interest, and deserve being particularly studied.

"If it should appear that cholera is *generally* propagated by means of some noxious emanations from the persons of the sick, the strictest quarantine regulations would of course be advisable. On the contrary, should we observe that the disease is neither generally, nor even frequently, found to affect those who are most exposed to personal communication with the sick, under such circumstances, that if contagion existed, we might reasonably expect it would be present in its most concentrated and active forms, we would then doubtless abandon all idea of retarding the progress of cholera by interdicting direct intercourse with the sick, or with those who may be exposed to any emanations from the bodies of persons suffering under that disease.

"I will now proceed to state such facts as appear conclusive with respect to the cholera of India, showing the results of unrestrained communication with the sick; and if the disease be neither generally nor frequently received, after the most extreme exposure, few persons will deem the danger great from slight and transient intercourse with the sick. If the disease ever possess contagious properties, assuredly there could be no difficulty in pointing out the particular instances of contagion at the time that they occur.

"The persons most exposed to contract cholera in the General Hospital at Calcutta (if the disease were contagious) are those having charge of the bedding and clothing, and those employed in personal attendance on the patients. The man who has charge of the hospital clothing, and his assistant, both attend in the wards every morning, changing the bedding of one ward each day on ordinary occasions. But when cholera exists, these people are obliged, in the majority of cases, to change some of the bedding of the patients having that disease, or oftener when soiled, for which purpose they come to the bedside, taking away with them the dirty bedding, which is given to the head washerman. The clothes-keeper, Shaik Selim, at present employed at this hospital, has been on that duty for two and a-half years; his predecessor, Dhowall, filled the same office for twenty-three years, and died at his own house of old age and debility, having been pensioned for long service. The head washerman, Gawhee, at present employed here, has been on this duty about one year and a-half; his predecessor, Hassye, held that office for two years, and died of chronic disease of the bladder, after an illness of near four months. Before this man Beechuck was washerman for twenty-one years; he died of chronic induration of the liver and pulmonary disease. Not one of the subordinate washermen, or people employed about the clothing and bedding stores, has ever had cholera.

"The native dressers have daily the most unreserved communication with the sick, changing the applications over leech bites, and the bandages to the arms of such as are bled, dressing blisters, and applying sinapisms; not one of these men has ever suffered from the disease. Buctourie, the head native dresser, who instructs the subordinates, and attends with them alternately while at their duty, has been constantly employed at the hospital for twenty-six years. He is a clever man, of good character, and asserts, that he has never known one of the hospital servants attacked with the disease.

"The sweepers, who clean and change the close-stools, as well as the pans in which the matter vomited is received, and who wash those patients who are helpless, have never been known to suffer from cholera. It may be supposed that the occupations of the sweepers are usually such as might be expected to blunt their susceptibility to disease, or to the effects of any ordinary exposure, but this will not be urged respecting the Hindoo Coolies, who are employed in ordinary attendance on the sick, and are obliged to be much in contact with all bad cases of cholera, to keep the blankets from being thrown off, and the men from falling out of bed when in the worst stages of the disease, and suffering much from jactitation and restlessness. These coolies are also employed to rub and champoo the extremities of the cholera patients, and often cannot avoid inhaling the breath, as well as the exhalations from the bodies of patients in the most deplorable stages of the disease. Not one of these men has ever suffered an attack of cholera. The young students who are under a course of medical instruction at the H. C. School for native doctors, are usually in attendance, and assisting at the hospital when cholera is prevailing in a severe form, and when great numbers of patients are admitted with that disease. In March and April 1827, when the hospital was unusually crowded with cholera cases, and all the attendants much distressed and exhausted by the severe duty, a number of the young students from the school were brought into the hospital, and placed in attendance over the worst cases, being relieved regularly day and night. These young Asiatics performed their duties with great diligence, assiduity, and humanity, for many days and nights, and none of them suffered by this constant exposure to whatever may be contagious in the emanations from cholera patients, as well as frequent contact of their persons. I publish these statements, after having made the most careful observations on this subject when the disease has been prevailing during my residence at the hospital, and after the most diligent inquiry relative to the same points during the last fourteen years. A remarkable instance of exposure, with impunity, to any morbific causes arising from the person during cholera, is recorded at page 204 of this work."

The author then refers to the epidemic which attacked in the H. C. ship Berwickshire, as given by Mr Henderson, and which we omit, as already noticed in Vol. xxxix. p. 202.

"The History of Cholera in India presents us with a vast number of instances, where either a body of healthy troops has joined and encamped along with those among whom the cholera was existing in the most violent and fatal form, or where a detachment in which the disease was raging, has joined a healthy encampment; and the disease has not been, in either case, communicated to those in a healthy state. A body of Holkar's Reformed Cavalry, 500 strong, were posted at Mahidpore, adjoining to the camp of above 2000 Bengal troops and followers, among whom the epidemic was prevailing, and the cavalry did not suffer from the disease, although a cholera patient from the Bengal division was brought to their camp, and went through every stage of the disease among them. In like manner, Casement's regiment of Irregular Horse joined the Hansi division of the army, and remained with that division without contracting the disease, at the time when the epidemic cholera was at its height. On the 11th of May 1818, a company of Bengal troops, ninety in number, encamped at an unhealthy spot on the bank of a small lake, sheltered by a few trees, and surrounded by low woody hills. The detachment arrived at this place all in perfect health; cholera commenced at midnight, and before sunrise next morning, twenty men were ill of that disease; they were removed to the Langor camp in carts and doolies in the course of the day; but before arrival there, five men had died, and two were moribund. By the end of the week, every man of this detachment had gone to hospital with cholera, or with a purging of some sort, resembling modifications of that disease, so that there could be no doubt of the malignity of the malady from which they were suffering. The men of this detachment had unrestricted intercourse with the troops in camp, not one individual of whom was attacked with cholera. For these facts I refer to the Bengal Report on Cholera, pp. 133, 134, and 137. More than a hundred such instances may easily be collected by any one who will take the trouble to make critical inquiries respecting the history of cholera for the last fifteen years. The facts above cited are sufficient to prove that the cholera in India, when existing in its most aggravated form, is not a contagious disease, and that there is no virus generated in or about the sick, by means of which the disease may be communicated to persons in health. The facts which prevent our acknowledging that the cholera of Bengal is contagious are numerous, well-authenticated, and the details are precise.

"It appears that a body of troops joining a camp at an unhealthy station, after long marches, is very liable to suffer from cholera; but if a camp in which cholera exists should move to a healthy station, and still numbers of their men continue to fall ill of the disease, in consequence of their past exposure, troops joining them after their removal to the healthy camp do not suffer from cholera. It has often happened that this disease has raged among troops encamped on the low banks of a river, without any evidence of cholera having travelled to them, or having been propagated from them to others at a short distance, who communicated freely with those suffering from the disease. Epidemic invasions of cholera arrive at their acmé so quickly, and then subside, as stated at page 11, continuing in their severest form so short a time, that the effects of change of place can hardly be duly estimated. We know that a body of troops having suffered severely from cholera, and remaining at the same station during the disease, and after its subsidence, has in many instances been unhealthy for five or six months afterwards, suffering from fevers and dysentery, with occasional cases of cholera. Places where the residents are usually very subject to fever, have of late years been frequently visited by cholera. These and similar facts afford the grounds on which we should be disposed to ascribe the epidemic cholera to some morbid influence connected with locality, sudden changes of temperature, and humidity; more especially when these morbific causes have to act on persons debilitated by disease, or fatigue and privations. Troops having marched through an unhealthy district, and who have been subject to much exposure, fatigue, and privations, are very liable to the disease, both on the march and when they halt, whether they join a healthy or a sickly camp. Although we have positive proof that the worst forms of cholera have not been communicable by means of any virus arising from the persons of the sick in India, we cannot ascertain why the causes usually exciting cholera do not invariably produce the same effect, and why numbers of persons are at times exposed to all those circumstances, which at other times excite the disease, and still cholera does not appear among them. However, as already observed, the same immunity frequently happens when persons are exposed to the ordinary exciting causes of fevers and many other diseases, concerning the proximate cause and essential nature of which we can hardly boast of knowing more than we do of cholera. Contagious diseases differ in many respects from cholera; they go through a regular course, and persons who are exposed to the virus by which they are produced, only show signs of disease at a certain period after exposure, and that interval in the majority of cases is uniform. We find nothing of the sort in cholera, which in some cases has attacked men the day after landing from ship, and second day after arrival from sea, as reported by Mr Scott, in the instance of a portion of the 41st Regiment on arrival at Madras Roads. If we examine critically the circumstances connected with any attack of epidemic cholera at a station, we find reason to conclude, that the disease is dependent on some morbific influence connected with the locality, for it often happens, that a short time before the appearance of numerous severe cases of cholera in a town, a disordered state of the digestive organs, and tendency to diarrhœa and nausea from slight causes, have been observed among numbers of the inhabitants; after which the epidemic cholera bursts forth suddenly, affecting numbers of persons at the same time, and in many instances attacking persons who have had no sort of communication with those who were suffering from the disease. Those who are sickly and predisposed, are destroyed in three or four days, and at the end of another week, the severe form of cholera disappears. There is no progressive course or succession of attacks in the individuals of a town during a severe visitation of the disease so as to warrant the belief that it is communicated by a virus received from sick persons. Diseases which are distinctly proved to be contagious, namely, variola, rubeola, pertussis, and some others, attack persons in good health nearly as readily as they do the debilitated and infirm, without being influenced by abrupt atmospheric vicissitudes in the degree to which cholera seems to have been on almost every occasion when the severest epidemic visitations have occurred. Nevertheless, we are obliged to acknowledge, that the contagion of fevers readily affects persons suffering from poverty and mental inquietude, exposed to much fatigue, ill fed, and insufficiently clothed; while men who are in circumstances which enable them to preserve a tranquil state of mind, and whose digestive organs and general health are unimpaired, are very often exposed to similar degrees of febrile contagion with impunity. The extreme proclivity to Cholera, produced by debility, from whatever cause it arises, is also a very remarkable fact.

"Having already stated the entire exemption from cholera, of those persons employed in the general hospital, and who were most exposed to unreserved and constant communication with the sick; I am desirous to mention that when epidemic cholera has prevailed in Calcutta, and we have had numerous admissions of that disease into general hospitals, more especially if the wards have been much crowded at the time; we have very frequently had sick and convalescents attacked in hospital; and there has evidently been a strong tendency among the patients who have been for many days, or weeks under treatment for other diseases, to lapse into the low form of cholera, with early accession of collapse, coldness, and cessation of the pulse. It has generally happened that those attacked in this manner, have been in parts of the hospital remote from cholera patients; very often in a different building, and precluded from any direct communication with those who were brought in with cholera. Moreover, these cases of the disease occurring in hospital, have generally happened at times when we knew that severe and sudden attacks were frequently occurring in persons living at various and distant parts of the town and suburbs of Calcutta.

"We have no doubt that debilitating diseases of any sort, and more particularly bowel complaints, render patients in hospital very liable to attacks of cholera of the worst description; but I am unacquainted with the history of any hospital, which affords proof, that the most aggravated forms of cholera have ever proved contagious.

Here Mr Twining refers to Mr Hitchcock's account of cholera in the H. C. ship Abercrombie Robinson, also noticed in Vol. xxxix. and on which he makes the following remarks.

"In the course of a few days, thirty-eight men were attacked with the disease.

"Of these ten men were at the time on the sick list, and they all died; ten more were weak and in bad health, in consequence of former illness, while in Bombay harbour,—of these seven died, and three recovered; the remaining eighteen were well, and at duty when attacked,—of these seven died, and eleven recovered. The men who first fell ill, with the exception of the boatswain, had the low form of the disease, which commenced with collapse; those occurring at a later period suffered from the inflammatory and febrile form of cholera. Mr Hitchcock's narrative is the most complete account I have seen of a local epidemic attack of cholera: it exhibits all the circumstances connected with the disease on board a ship, whose crew consisted of about 150 men.

"When we observe cholera to have appeared progressively along great roads, and navigable rivers, where frequent communications by travellers, and much commercial intercourse exists, the idea of contagion is readily suggested, and it is not easy for any one to give positive proof that such idea is erroneous, except a person were on the spot, and able to examine all the circumstances connected with the origin of the disease, at the time when it was supposed to have been produced by means of contagion. When cholera appears in a town on a much frequented road, it is always possible to ascribe its importation to the travellers last arrived. When a proclivity to the disease exists at a station, from some circumscribed endemic influence, it is evident that when travellers arrive after long journies, during which they had been deprived of their ordinary domiciliary comforts, and subjected abruptly to change of air, water, and food, they are under circumstances in some respects resembling our recruits on arrival from Europe, who are prone to the severest forms of the disease. Thus predisposed, it is not surprising that travellers arriving at a town should be the first attacked, when the disease was on the verge of breaking out among the residents. Much the same observation may be made respecting ships trading to a port at which cholera appears; the arrival nearest to the appearance of cholera is likely to bear the blame of having brought the contagion. If we assume that cholera is contagious, and look only at those circumstances where it is *possible* the disease may have been communicated by personal intercourse, many circumstances may be found where contagion may be *suspected:* but proofs of the fact are wanting in India, while proofs adverse to the belief in contagion are numerous."

Upon the whole, this may be described as a very excellent view of the causes, symptoms, and treatment of cholera as it occurs in India; and while we represent it as a clear, concise, and judicious manual for the East India practitioner, we must say that the possibility of the occurrence of the disease in Europe must strongly recommend it as a useful guide to medical men in this country.

ART. VI.—*Traité de Maladies des Enfans Nouveau-nés et a la Mamelle; Fondé sur de Nouvelles Observations Cliniques et d'Anatomie Pathologique, faites a l'Hôpital des Enfans-trouvés de Paris dans le service de M. BARON.* Par C. M. BILLARD, Docteur en Mêdecine de la Faculté de Paris, &c. *Deuxieme edition augmentée, d'un Memoire Medico-legal sur la Viabilite du Fœtus; avec des Notes et une Notice sur la Vie et les Ouvrages de l'Auteur.* Par M. le Dr OLLIVIER, (D'ANGERS.) Paris, 1833. Pp. xxxii. and 728.

IN this country the diseases of new-born children have been less studied than those of any other age; and, as a natural consequence, the utmost confusion and difference of opinion exists concerning them. Of this any one may be satisfied who will take the trouble to turn to the meagre and unsatisfactory observations which are usually appended to treatises on midwifery. We are well aware that this is by no means owing to the indolence or apathy of medical men. Wherever opportunities have been presented they have been eagerly embraced; but the prejudices of mothers and nurses, and, above all, the want of hospitals, where extensive and accurate observations can alone be made, are more than sufficient to account for the general want of information on the subject. The evils arising from this are neither few nor trifling. An opinion has long prevailed, even among the better ranks of society, that medical men are in general incompetent to prescribe for the common diseases of early infancy; and the little sufferers are treated according to the capricious directions of some old nurse, or Lady Bountiful, who is sufficiently ignorant not to know her own incapacity, and conceited enough to believe her judgment to be infallible. Should a medical man be called, the chance is, that his directions are disregarded or modified, to make them assort with the prejudices of ignorance; and he is blamed for want of success where success was impossible. In the meantime the little patient gets worse; and the distressed mother, tortured by the sight of his sufferings, is prepared to lend a willing ear to the bold falsehoods of some unprincipled quack, who vends his poisons under the specious titles of *soothing syrups*, *convulsion drops*, &c. It is time that this state of things were put an end to; but this can be done effectually only by practitioners acquiring accurate information regarding this class of diseases, and removing all grounds for the charge of ignorance; and, with the view of drawing the attention of medical men to a work on the subject, written in a truly philosophical spirit, and founded on sound physiological principles and observations, we shall lay before them an abstract of some parts of the treatise, the title of which is prefixed to this article.

In a short introduction the author advances the following doctrines.

The peculiar properties of all substances, animate and inanimate, as well as the phenomena which they exhibit, depend upon their structure and organization, so that the latter cannot be altered without producing some change on the former. This proposition, true regarding classes and species of animals, is true also regarding individuals; and functional aberrations, or diseases resulting from any disorder of the organization, will vary according to the individual, and the epoch of his life. Thus the embryo, the *fœtus*, and the adult, will, in a state of health, perform their functions, each in a peculiar manner proportioned to the perfection of the organization; and in a state of disease will present symptoms differing, according to the different phases of organization. It is not therefore at birth, that the series of evils which afflict the species begins. It commences with organization, of which it is the possible, if not the necessary, consequence. Thus infants may be born healthy, diseased, convalescent, or entirely cured of old diseases.

The work is divided into two parts. The first embraces the general phenomena observed on the external examination of the infant; the second comprehends the diseases developed before and after birth, viewed in relation to the organs affected. To the whole is appended an essay on the viability of infants.

Part First comprehends observations on the attitudes of the infant—the colour of the integuments—the separation of the umbilical cord—the exfoliation of the *epidermis*—the length and weight—means of expression and state of the pulse—concluding with a chapter on the feebleness of infants at the time of birth.

Attitudes of the Infant.—The flexed position of the extremities, and curvature of the trunk forwards, constitute the peculiar attitude of the new-born infant. Voluntary motion begins first in the upper extremities; and the hand, which at the beginning exercises prehension in a mechanical manner, becomes more and more able for its functions. The motions of the head, neck, trunk, and finally, of the lower extremities, succeed in succession, so that the infant by degrees escapes from its state of inertia, and in proportion as its body is perfected, and its muscular power developed, acquires insensibly those attitudes which characterize the species. Thus we find all the functions of the animal economy directly depending on organization.

Colour of the Integuments.—Infants at the time of birth have almost all a uniform colour. Blood predominates in their tissues, and communicates its colour to the body. From the fifth to eighth day this colour diminishes, but it may remain longer, and no precise period can be mentioned as that of its disappearance. To the primitive red colour may succeed many different shades. The integuments become rosy, white, or more or less yellow. Before becoming altogether white they have a general yellow or copper tint, considered by many to be the consequence of diseased liver, an opinion combated afterwards by the author. The redness is caused by the superabundance of blood in the tissues, which gradually disappears, in consequence of its being expended by the organs during the first days of extra-uterine existence. The skin of the infant is at first covered with an albuminous matter, more or less thick. It continues for some days gluey, especially at the wrinkles, where the perspiration causes considerable irritation. By degrees the skin becomes drier, and the cutaneous exhalation no longer presents any thing remarkable. About the third month we can distinguish whether the child is to be dark or fair. Before this the colour of the hair affords some indication; but at this period the skin has become white or brown, the visage pale or florid, and the traits peculiar to each constitution are already traced. True it is that a thousand causes may modify the constitution or temperament; but from the age of two or three months we begin to distinguish the shades of colour or tint peculiar to each individual, and the older the child grows, the more marked are differences.

Separation of the Umbilical Cord.—It is difficult to determine the length of time required for the desiccation and separation of the cord, and the cicatrization of the *umbilicus;* but the author comes to the following conclusions,—that thick, soft, gelatinous cords, dry more slowly than small thin ones—that the proportion of the former is as one to two of the latter—that the average period required for desiccation is three days—that this can take place only during life;—that if, on necropsy, we find the cord fresh or beginning to wither, the infant may have been dead born, or lived only a short time; but if desiccation have commenced or be completed, the infant must have lived at least one day;—that the separation of the cord takes place on an average on the fourth or fifth day, and cicatrization from the tenth to twelfth. The separation of the umbilical cord is caused by the constriction which the dried lymph exercises on the umbilical vessels at the level of the *umbilicus*, and by the motions, outwards and inwards, of the abdomen on the contracted, dried, and fragile point of the cord.

Exfoliation of the Epidermis.—This always takes place after birth, but at a very uncertain period. M. Billard's observations lead him to conclude, that from the third to fifth day it proceeds with the greatest activity, and that it is finished in a space of time varying from thirty days to two months. The cause of the exfoliation of the epidermis is this. The integuments of the child having been plunged for about seven months in a liquid which ought to keep them continually moist and supple, the *epidermis* is, as it were, soaked with the *liquor amnii* at the time of birth. Once exposed to the air, it suddenly becomes dry, and loses its suppleness. To this desiccation, which is not prevented by the cutaneous exhalation, is owing the cracking, scaling, and separation of the *epidermis.* The new *epidermis* is formed insensibly during the process of desquamation. In parts exposed to the air, this goes on with great rapidity, but in other situations more slowly, leaving the skin exposed in a very irritable state as on the scrotum, on the arm-pits, &c. M. Billard has found it impossible to establish any connection between the separation of the umbilical cord and that of the *epidermis*, so as to determine the age of the infant.

Length and Weight of the Infant.—The author's observations make the length and weight of the infant less than what is generally stated. Rœderer found the mean length of sixteen male children to be $20\frac{10}{12}$ inches, and of eight females $20\frac{4}{12}$. This is also the general opinion of British writers. The writer of this notice measured sixty-four children of different sexes born at the full time, in the country, and found the average to be between 19 and 20 inches. Professor Chaussier makes it 18 French inches, and M. Billard, from the measurement of fifty-four infants, concludes that from 16 to 17 French inches is the standard length.

There seems to be as much difference regarding the weight of the new-born infant. Chaussier, Baudelocque, and others, make the weight to be from 5 to 6 pounds. Dr Hunter, from the observations of Dr Macaulay, states, that, of several thousands of new-born healthy children, the smallest was about 4 pounds, and the largest 11 pounds 2 ounces; that the greater number weighed from 5 to 8 pounds; and that he never saw one weigh 12. According to Dr Clarke, the average weight is 7 pounds 13 drachms avoirdupois. Rœderer makes it $6\frac{1}{2}$ pounds, and M. Caucus from 5 to 7. It is of little consequence, as the age of the infant must be determined by other circumstances than its weight.

Means possessed by the infant of expressing its feelings.—These are its cry and countenance. The cry is composed of two parts, the one loud and prolonged, resulting from expiration, the other shorter, sharper, and often less perceptible, the result of inspiration. It is impossible to express by language the tone of the cry, which varies like that of the voice. The author gives a most minute and accurate description of the phenomena of the cry, but too long for insertion here. Young infants never or very seldom shed tears when crying. The lachrymal gland appears to be perfectly developed, but though at a later age it is quickly and sympathetically excited by any present or past cause of sorrow, yet despite the agitation and reiterated cries of a young infant, tormented by want of sleep, restlessness, and pain, no tears are secreted. The cause of the first cry is pain, occasioned by the new sensations which the child experiences. After this, cries may be provoked by want, uneasiness, or pain; and it is of consequence to be able to distinguish the one from the other. Though a child should be quieted when allowed to suck, that is no reason for supposing hunger to be the cause of his cries, for some children are so voracious, that they always greedily take the breast. This voracity ought to be checked and regulated by giving nourishment at stated periods only. At first it ought to be put to the breast every two hours. If the child cry but at intervals, and if, by the least diversion, by lifting it or relaxing its clothes, it can be quieted, we may be sure that neither pain nor hunger is the cause. The cry of pain may be distinguished by its force, frequency, and obstinacy, by the peculiar appearance of the child's countenance, by its paleness, its wasting, its refusing the breast, &c. In disease, the tone and form of the cry may be modified by the organs affected. Some infants cry almost incessantly. Their cry is the same as that caused by uneasiness, as it is caused by irritability. The cries of a child should be stopped as soon as possible, by taking away the cause, and distracting the attention. To prevent crying, nourishment should be given at regular periods,—the temperature of the chamber regulated,—the child accustomed to sleep in the midst of noise,—be lightly enveloped in its clothes, and its agitation calmed by the sound of a sweet instrument, or by singing the most easy, natural, and popular airs. The author enters at great length into all the variations of the cry and the countenance; but as his observations will not bear abridgement, we must refer to the work itself.

State of the pulse.—M. Billard allows that writers are so far correct in stating that the pulse of children is more rapid than that of adults. There are many exceptions, however, to this, and he has seen cases where the pulse was as slow as that of old people labouring under some organic disease. It is extremely difficult to count the pulse of very young children. Sometimes it is so rapid that the beats run into one another, and one beat may be counted instead of two. Some beats die away in an imperceptible manner under the finger, so as to escape attention. In fine, the artery may vibrate under the finger like the *pulsus dicrotus* of adults, so that two pulsations may be counted for one. If to all this we add the difficulty of finding the artery on the plump arm of a chubby infant, and the still greater difficulty of fixing the wrist for any length of time, it will be easily seen how difficult it is to count the pulse of new-born infants carefully and exactly. The author recommends us to avoid as much as possible the seizing and fixing of the arm of the infant. It is better to allow it to remain free, to apply the index finger gently to the artery, not to press too firmly for fear of stopping the pulsation, and after some pulsations, gradually to diminish the pressure, and to permit the artery to dilate with all freedom. It is easier to find the artery by applying the index finger alone, than by applying three fingers, as recommended in the adult. We may proceed in the same way with the temporal, and when the beats are too rapid, obscure, or difficult to observe, we may, by means of the stethoscope, or the hand, count the motions of the heart. Adopting all these precautions, the author gives the results of his observations, which we have reduced to the tabular form.

In 40 *Healthy Infants from* 1 *to* 10 *days old.*

Pulse of 18 was less than	80
In 2 it was	86
1	89
4	100
10	125
1	130
2	145
2	150
1	180

Of 35 *Infants from* 1 *to* 2 *months old.*

Pulse of 14 did not exceed from	80 to 85
2	90
2	94 to 95
5	110 to 112
2	114
7	125 to 130
3	140, 150, 160

Of 15 *Infants from* 2 *to* 3 *months old.*

14 were from	90 to above 100
2	70
2	70 to 80

It appears from the above tables that the pulse of the new-born child is often scarcely more frequent than that of the adult, but that it gets more rapid as the child gets older, so that it is wrong to say in a sweeping manner that the pulse of new-born children is *always* more frequent than that of adults.

The pulse presents other characters, depending upon functional irregularity of some of the organs, which the author points out in treating of the several diseases in which it occurs.

Weakness at birth.—This word is frequently very vaguely employed. It is the result often of an alteration, more or less deep, of some essential organ. M. Billard conceives, that though all the infants born with alteration of some of their organs do not present marks of emaciation or feebleness, yet, wherever these marks are present, we ought to suspect some internal disease, notwithstanding some rare cases of these occurring from want of vigour in some of the principal organs. Sometimes after birth infants fall into a state of marasmus and debility, which is generally treated on the stimulating plan, whereas the contrary system should be adopted, as it most commonly arises from chronic inflammations of the digestive apparatus. The conclusions to which M. Billard's experience leads are, that when we find an infant born so feeble, emaciated, and delicate, that it can scarcely be expected to live, we ought not always to attribute this state to simple feebleness of developement and organization,—that many different lesions may be the cause,—and that, before exhibiting tonics and stimulants, we should trace this apparent debility to its true source.

Our limits will not permit us to consider minutely the second part of the work; and it would be impossible to give a clear idea of it by any abridgement. As observed above, M. Billard describes the diseases of early infancy according to the organs affected; and before entering on the lesions, he gives a most minute view of the anatomy and physiology of the parts. Most authors have followed a different plan, taking symptoms, or groups of symptoms, as the basis of their arrangement, without regard to anatomical lesions. To show the exact value of these symptoms, the author, after a most laborious and scientific view of the diseases of the digestive apparatus, examines a few of the most important.

Vomiting.—This may proceed from many causes, such as indigestion, *stomacale et intestinale*, caused, probably, by the bad qualities of the milk; *œsophagitis*, *gastritis*, and *enteritis*; principally of the ileo-cæcal region; interruption of the course of the fecal matter, by invagination or spasm of the intestines; and, finally, by ramollissement of the mucous membrane. It is impossible, then, to draw any practical conclusion from this symptom taken by itself; and to give a clinical account of it, it would be absolutely necessary to review all the diseases of the digestive canal, for it may proceed from any of them.

Diarrhœa is not an invariable sign of *enteritis*; it may be produced by intestinal indigestion,—by an irritable state and increased secretion of the follicular apparatus,—by *colitis* as well as *enteritis*. Yellow frothy fluid diarrhœa is very often accompanied by inflammation. The white and mucous is often produced by increased secretion of the muciparous follicles; and diarrhœa, mixed with greenish flakes, very often exists without inflammation.

Redness near the anus almost always accompanies diarrhœa, whether inflammatory or not.

Tension of the belly.—This is most commonly observed in *enteritis*, and is then accompanied by pain of the abdomen. Distension of the intestines by gas when it supervenes on spasm produces the same phenomenon; but it is intermittent, and ceases with the pain when the gas escapes, while it is uninterrupted during inflammation. When there is *ramollissement* of the mucous membrane, tension commonly exists without pain, but accompanied by paleness and debility.

Colics may be the result of spasm, inflammation, invagination, imperforation of the *anus*, distension by gases, during or after inflammation, when the food remains long in the intestines without being digested.

Cholera, as described by Dr Dewees, M. Billard considers to be violent *gastro-enteritis*, complicated with hemorrhage, of which he gives examples at pages 375 and 411. Consequently he condemns the treatment, and attributes the great mortality to the exhibition of tonics and stimulants.

The symptoms of reaction in intestinal diseases are generally not so marked in young children as in adults. The heat of the skin is alone increased; and very many fall victims to the most serious lesions without exhibiting symptoms of fever; the feebleness of the pulse rather than acceleration of the circulation being a symptom of reaction, as the latter is in adults, so that affections of the digestive canal are greatly modified by the period of life.

We shall give one more abstract, containing the author's account of *hydrocephalus* or cerebral *meningitis*.

The effusion of serum in the cerebral ventricles takes place with great rapidity in infants. The least meningeal or cerebral irritation produces it; and, as the sudden presence of water in the ventricles causes by contact, pressure, or distension, greater pain and new symptoms, the *meningitis* or *encephalitis*, complicated with *hydrocephalus*, assumes from this time its proper character. To the convulsions, anxiety, and slight agitation apparent at the beginning of the disease succeeds at once the greatest excitement. The child often proclaims by a sharp and penetrating cry the excess of his pain, which intermits for some moments, and then returns with new intensity. This remission is very remarkable; it has sometimes even a periodicity, which has led authors to describe an intermittent hydrocephalic fever. When the effusion is considerable the convulsions are less, the limbs are relaxed, and the face has a peculiar expression, arising from the dilatation of the pupils, and the fixed and heavy look of the child. The pulse from being frequent and full becomes very slow, and scarcely perceptible. Sometimes the child comes at once out of this state of prostration to one of great excitement; but the exacerbation is short, and quickly gives place to a comatose state, which lasts till death. In children somewhat older other symptoms appear, of which the principal is the pain in the head, causing the sensation of a body separating the bones of the cranium.

The secondary symptoms are vomiting, difficulty of breathing, and alteration of the tone of the cry, and often an obstinate constipation.

Sometimes *hydrocephalus* assumes the chronic form after the acute, in which case the patient falls into stupor and idiocy.

Dissection exhibits anatomical lesions very numerous and variable. In a very small number of cases we find only simple vascular injection of the *meninges*, and a serosity more or less clear in the ventricles. The author does not consider this as *hydrocephalus* uncombined with *meningitis*, for cases of *meningitis* and *encephalitis* strongly marked during life are found after death to present no appreciable lesion, and the only conclusion that can be drawn from these apparently negative facts is, that inflammation had not time to produce those alterations which it usually produces. One only of its results existed, viz. the effusion of serum. The effusion varies in quantity and situation. Its quantity cannot be appreciated, and we cannot tell in what degree it begins to cause painful distension or compression of the brain. Its usual seat is in the ventricles of the brain and the great cavity of the arachnoid, but it is very often found infiltrated below the *pia mater*, or rather between it and the arachnoid. Its colour varies from a clear to a muddy yellow. It is sometimes mixed with albuminous flakes, sometimes gelatinous between the convolutions of the brain, and very often bloody in new born infants.

When the hydrocephalic effusion has been considerable, the walls of the lateral ventricles are softened, and sometimes reduced to a very fluid pulp,—an alteration caused mechanically by distension and compression, and not chemically, as analysis has proved the fluid of *hydrocephalus* to contain nothing which could corrode the substance of the brain.

The brain is sometimes strongly injected, and of a very firm consistence, and M. Billard once found small bloody effusions disseminated through the two hemispheres. Sometimes, on the contrary, it is pale and in a state bordering on ramollissement, or completely in that state. The *pia mater* is always strongly injected, and its surface, as well as that of the arachnoid, covered by a stratum more or less thick of albuminous concretions. The choroid plexus, which is almost always tumified, and of a black-red, is sometimes wholly enveloped in a thick layer of pellicular substance. Finally, *meningitis* may cause, besides effusion of serum in the ventricles, true suppuration of the brain, of which there are cases on record.

There are then two periods or two varieties of *meningitis;* the one simple, consisting only as yet of vascular injection, or red dots, with or without the formation of pellicular layers on the surface of the brain, and giving rise to general convulsions, spasmodic agitation of the muscles of the face, and cries provoked by pain; the other complicated with a serous or sero-purulent effusion in the cerebral cavities, causing increased agitation and convulsions, which soon end in coma more or less intense. This last is accompanied by permanent dilatation of the pupils, rigidity of the limbs, and at last by complete resolution of them, and total annihilation of the intellectual faculties. These symptoms vary in their intensity, remissions, and exacerbations, and are complicated with others. Their fundamental character always remains. M. Billard's treatment consists of the application of leeches to the base of the jaw, refrigerating compresses to the head, and one or more blisters to the arms or legs, with the administration of calomel or any other purgative.

We have purposely refrained from quotation and remark, that we might give an abstract of as many of the author's views as possible. The best parts of the work, consisting of minute and accurate anatomical and pathological descriptions and well-detailed cases, we cannot, for want of room, transfer to this notice. To have abridged them would have destroyed half their merit. Every fact, however trifling, is brought to bear on the question, and it would have been injustice to the author to have mutilated his arguments. He, to be sure, is now beyond the reach of praise or censure. Sixteen months ago he fell a sacrifice to consumption, in the thirty-second year of his age. His career, though short, was honourable and useful. Besides the treatise before us, he is the author of a work on the pathological anatomy of the stomach and intestines, formerly reviewed in this Journal—various papers in the Archives Generales de Médecine—and translations of Thomson's First Principles of Chemistry, Lawrence on the Eye, &c. For a full account of his life and writings, however, we must refer the reader to the interesting Memoir prefixed to the present volume.

In conclusion, we would observe, that the work of M. Billard on the diseases of infants is by far the best systematic treatise on the subject, and that it ought to be perused with attention by all who would wish to practise in this department of the healing art with satisfaction to themselves and safety to their patients.

ART. VII.—*Researches on the Pathology and Treatment of the most important Diseases of Women.* By ROBERT LEE, M. D., F. R. S., Physician-Accoucheur to the British Lying-in Hospital and the St Mary-le-Bonne Infirmary, &c. London. 1833. 8vo. Pp. 220.

IN the present volume, which consists of two parts, Dr Lee has collected and republished all those separate papers which he has written during several years on *phlegmasia dolens*, uterine *phlebitis*, and the varieties of puerperal fever. In the accomplishment of this duty, he has at once introduced considerable additions and corrections, and greatly modified those papers, so as to concentrate their contents as much as possible, and present the whole in such a shape as may be useful to the general and obstetrical practitioner.

The first part is devoted to the subjects of puerperal fever and crural *phlebitis*; and the author, who has modified somewhat his views of the subject of *phlegmasia dolens*, it will thus be seen, has altered the original arrangement of the individual essays, and adopted one which, in presenting first the simple and essential circumstances of puerperal disorders, and afterwards considering the consequent and accessary affections, is certainly more natural and better suited for practical illustration.

The author continues, however, to regard the affection called *phlegmasia dolens* as a mere consequence of inflammation of the iliac and femoral veins, and therefore considers it under the general name of *crural phlebitis*. In the present essay, Dr Lee must be admitted to have established two points; the first, that occasionally the disease named *phlegmasia dolens*, or, as he terms it from its pathological cause, crural *phlebitis*, does terminate fatally as other instances of inflamed veins do; and the second, that it may assume a character so mild, and pursue a course so slow, that the fatal event is averted—apparently by the phlebitic process being confined to the effusion of lymph, in small quantity only, within the cavity of the vein.

From these circumstances, Dr Lee has now distinguished the disease into two forms;—1*st*, the violent or severe, accompanied with great disorder of the circulating system, and depending on extensive inflammation of the iliac or femoral veins, producing effusion of lymph in the interior, thickening of the venous tunic, and effusion occasionally into the sheath of the vein; and, 2*d*, the mild, generally terminating in resolution, apparently without effusion of lymph, or with little, and ending in recovery, sometimes soon, without residual swelling of the leg, sometimes more slowly, and with swelling, which does not subside for weeks or months, or even years, or which may endure during the whole remaining course of the life of the individual.

It is a strong confirmation of the soundness of the views of Dr Lee, that he has now completely proved that the swelling of the lower extremity may take place in females who are not in the puerperal state, and also in males, from any cause which induces inflammation of the iliac or femoral veins, and more or less complete obliteration of their canal.

The following example of crural *phlebitis* occurring in an individual of great eminence, and producing all the phenomena of *phlegmasia dolens*, affords so happy an example of the application of anatomical and pathological knowledge by the distinguished surgeon who was consulted, that we cannot refrain from giving it as it stands.

> "On the 30th April 1832, Sir Henry Halford read an interesting account, at the College of Physicians, of *crural phlebitis*, as observed in the late Earl of Liverpool. The attack commenced many years ago; and it is probable, from a circumstance stated to me by Sir A. Cooper, that it was induced by exposure to a current of cold air, which passed through an open window and fell upon the lower extremities, when but thinly clothed, while his lordship was attending a crowded levee. Dr Pemberton and Sir A. Cooper, who were in attendance, treated the case with leeches, and the usual antiphlogistic remedies. After Dr Pemberton's death, Sir H. Halford was consulted. He found the disease affecting the left groin and thigh, and extending into the leg. Nothing further was found remarkable except the slowness of the pulse, making about forty-four beats in a minute. On communicating the fact to Sir A. Cooper, that eminent surgeon ingeniously conjectured that this anomaly was due to the obliteration of the iliac vein. His lordship subsequently found the sight of the left eye affected, and soon after he had a series of attacks of apoplexy, one of which proved fatal. The *post mortem* examination, Sir Henry Halford observed, afforded a curious confirmation of Sir A. Cooper's conjectures, for the left iliac vein was found completely impervious. On examining the brain, a large cavity filled with serum was found over the right ventricle. Sir Henry related other two cases of *phlegmasia dolens* in men. They were similar to the case of the Earl of Liverpool, and were succeeded by marked tendency to head affection.
>
> "Sir A. Cooper gave me an opportunity to examine the iliac veins; and they appeared to have undergone similar changes of structure as in *crural phlebitis* of puerperal women. I have never observed any remarkable slowness of the pulse, even in cases where the *vena cava* has been completely plugged up. It is probable that the slowness of the pulse in Lord Liverpool was produced by the disease of the brain, and not by the obstruction of the iliac veins."—Pp. 169, 170.

The second part of the work is devoted to the subject of uterine hemorrhage.

The author begins by taking a view of the connection of the *placenta* and fœtal membranes with the womb, in which he brings forward all the material facts already stated by him in his paper on the anatomical peculiarities of the *placenta*, and adds several others in confirmation of the inferences there deduced, especially a very pointed and satisfactory account of the dissection of a gravid *uterus*, by Mr Charles Millard, Demonstrator of Anatomy in the Webb Street School, and which was also examined by Sir Astley Cooper, in September 1832.

The following passage contains the most import facts relating to the point at issue.

> " On making an incision through the anterior wall of the *uterus*, the attention was immediately arrested by the large size of the uterine veins, especially of those in the neighbourhood of the *placenta*. The right side of the anterior wall of the *uterus* was then carefully turned back, and with such ease as to convince me that no large vessels were torn through; the *tunica decidua* was now distinctly seen passing behind the *placenta*, and it was also observed to pass over the orifice of the fallopian tube. The other side of the *uterus* was then carefully examined under water, principally with a view to determine the direction and termination of the uterine veins, and the connexion that exists between the *uterus* and *placenta*. This examination completely coincides with your description. The uterine veins passed in an oblique direction, as regards the *placenta*, and not immediately towards it, and in no instance could they be traced into its structure, for whether they were followed from the external to the internal surface of the *uterus*, or in the opposite direction, they were found to present a number of large valvular openings, some of an elliptical and some of a semicircular form, situated in the sides of the veins, and having no corresponding openings on the outer surface of the *placenta*, but closed by the deciduous membrane. All these openings had distinct, well-defined edges, formed, apparently, by a duplicature of the lining membrane of the *uterus*, and quite unlike ruptured vessels; indeed, as I have before stated, none of these veins could be followed into the *placenta*, even by the most careful examination. But both arteries and veins, not larger than a bristle, were readily traced from the surface of the *uterus* to the *tunica decidua* covering the uterine surface of the *placenta*, where they ramified very minutely. Some of these were distended by inflating the large uterine veins, but no air could be made to pass from these vessels into the substance of the *placenta*, although the inner membrane was distinctly raised by it. The *uterus* was farther connected to the *placenta* by a quantity of pulpy cellular membrane, which easily broke down under the finger."—Pp. 201, 202.

To us it appears quite clear that Dr Lee has established the great and essential part of his doctrines,—that there is no communication between the *uterus* and the *placenta*, by direct continuation of large arteries and veins. Whatever be the nature of the vascular connection of the womb and the *placenta*, it is evident, that in the centre, and every where, except at the mere edges of the *placenta*, vessels do not pass directly from the former organ into the latter.

As to the question of maternal or uterine, and fœtal or umbilical, portions of the *placenta*, and the alleged intermediate cells, the whole are matters of opinion, or at least different modes of viewing and naming the same objects. Whoever chooses to call the attached tomentose surface of the *placenta uterine* or *maternal*, and the free or smooth surface the *fœtal*, cannot be justly accused of misnaming them, and it is not worth while to controvert the denomination given in such a manner. But if, by such a term, is meant that the tomentose surface belongs exclusively to the mother and to the womb, and the smooth surface exclusively to the fœtus, then we presume the inference is contradicted by the facts.

The circumstance of cells may be correct or erroneous, according to the idea attached to that term. Dr Lee is of opinion that the appearance of cells is merely the result of extravasation into the loose tissue of the *placenta*, and we confess we are rather inclined to this opinion also, from what we have seen of *placentæ*. These alleged cells in all injected preparations are extremely irregular in shape and size; and it is, therefore, hardly possible to conceive that they exist as part of the natural and essential structure of the organ.

But whatever opinion be entertained on the facts adduced by Dr Lee, and the deductions which he has conceived himself entitled to draw, we conceive that he has made no statement, and advanced no opinion, which could justify the several attacks which various individuals have shown abundant disposition to make. For the mere heresy of venturing to question the accuracy of William Hunter, Dr Lee has first had his powers of observation and his modesty called in most serious question; and all his facts were either flatly contradicted, or he was told that he knew nothing of the matter, and was extremely insolent to dare to adopt views different from those of Dr William Hunter.

Another class of persons, who could not deny the facts, were determined, however, that the merit of discovering, and placing them fairly before the eyes of the profession, should not belong to Dr Lee. First, it was asserted that he had taken them from a foreign anatomist, and was guilty of plagiarism. No charge could ever have been advanced on more slender grounds, and against an individual who could more easily and satisfactorily repel it. But even this was unnecessary, for the charge was so absurd and inconsistent with the facts of the case, that it actually carried with it its own refutation; and we are confident that no one who knew Dr Lee, who knew his mode of investigation, and the faithful and solicitous assiduity with which he has studied to ascertain what is true, could for one instant lend the slightest attention to so improbable and absurd an accusation.

This ground, therefore, being no longer tenable, it was deemed expedient to adopt another mode of underrating the value of the researches of Dr Lee, and to assert, that they presented nothing new; that all the facts had been ascertained, and the inferences established, by various previous inquirers, as Dr Donald Monro, Sabatier, and others; and that Dr Lee could never have made the declaration he did regarding the novelty and originality of his views, unless he had been grossly ignorant of medical literature.

Now to the whole of this idle and frivolous objection, common sense will only reply, what could the profession have thought of Dr Lee, if, instead of examining the connection of the gravid womb and the *placenta*, with his own eyes and in his own hands, he had come forward with an idle *rifacciamento* of all the opinions and fancies, sometimes odd enough, derived from the rude injections and dissections of the anatomical, physiological, and obstetrical writers, who have figured for the last two centuries. Would it not have been justly said, that Dr Lee might be a very learned and well-read man, but was nothing of an anatomical observer? Would it not with justice have been said, that Dr Lee had merely told us what had been done by other anatomists, and what was in their writings, but had not given us a single precise fact.

We confess that we are delighted to find that Dr Lee did not follow this course; that he threw aside the spectacles of books; and that he looked with his own eyes at the objects themselves, and described them as they appeared to him. His researches thus acquire a value which they could not otherwise possess; and though he has not entirely overlooked what previous observers had ascertained, he has not suffered their statements to bias his observation, but has given an original description from repeated and careful personal inspection. It would be well for science if the example of Dr Lee were more frequently followed. But it appears that there are not a few who imagine, that, if a part of the human body has been described by some eminent and distinguished man, it is impossible to suppose that he has either omitted or misrepresented any thing, it is concluded that every point is determined, and that all subsequent observers must acquiesce in every statement and inference thus made. A complete barrier is here fixed to all research, to all originality, and to all rectification and improvement. It is equivalent to saying,—anatomy is a perfect science, and none must dare to expose defect or rectify error. We trust, however, that the physiological sciences have not yet attained this state of calm and undisturbed apathy, and that there is still room for the exertions of original minds.

Meanwhile we are satisfied, that, whether Dr Lee shall succeed in convincing the anatomists and physiologists of the present day or not of the accuracy of his conclusions, the truth will at length be elicited; and the value of his inquiries will be by no means diminished, that he has been partially anticipated by some of the previous anatomical observers. It is even a degree of merit peculiar to himself, that the conclusions at which he has arrived are the result of his own personal investigations; and the charge of ignorance of previous inquiries, even if established, pays him the highest compliment, as a person of original and active intellect. Many can repeat what has been already said. It is the province of few to deviate from the beaten tract, and either tell what has not been previously told, or unconsciously revive in a better and more precise and complete shape, what had been only partially and imperfectly done before.

We feel it painful to be compelled to make these observations, because the manner in which the researches of Dr Lee have been received, indicates the prevalence of a spirit not very favourable to improvement. If Dr Lee be in the wrong, the way to rectify the alleged errors, is to point them out directly, and neither underrate them by asserting that they were anticipated, or deprive him of their merit, and impugn his character by accusing him of availing himself of the researches of others without acknowledgment.

To quit this subject, we have to observe, that the views which Dr Lee gives of the connection between the womb and *placenta*, lead immediately to the explanation of the cause or causes of uterine hemorrhage. These explanations will be understood from the following passages.

"It follows, from these views of the nature of the relation which exists between the *placenta* and *uterus*, that a flooding cannot take place during pregnancy whilst this connexion is preserved entire. It follows, likewise, from the facts now stated, that when hemorrhage occurs either in the gravid state of the *uterus*, or subsequent to delivery, the blood does not flow from lacerated arteries and veins passing between the *uterus* and *placenta*, but that it escapes from natural openings in the lining membrane of the *uterus*, which had previously been closed by the *placenta*.

"After the separation of the *placenta* in natural labour, the contractions of the *uterus*, and the formation of clots within its cavity, and in the orifices of the uterine sinuses, are the principal means employed by nature for arresting the flow of blood. The semilunar or valvular-like edges of the vessels at their termination in the inner surface of the *uterus*, are admirably adapted to ensure the effect of arresting the current of blood through these passages by the contraction of the fibres with which they are every where surrounded. However excited the circulation in the uterine vessels may be, the structure of the parts is such, that flooding cannot take place from a contracted *uterus* after the expulsion of its contents. All the different means which have been hitherto recommended for checking the effusion of blood in uterine hemorrhage produce their effect either by exciting contraction of the *uterus*, and the subsequent closure of the bleeding orifices, or by promoting the coagulation of the blood itself within them."—Pp. 202, 203.

The details of the different species of hemorrhage are given in three chapters, which conclude this part of the work. These are entirely new.

In conclusion, Dr Lee has rendered a great service to the obstetrical and rising branch of the profession, by putting in a concentrated and portable form the valuable essays now mentioned. In the Medico-Chirurgical and Philosophical Transactions, they are necessarily more limited in circulation than in such a shape as the present; and now that the accoucheur has such an opportunity, we conceive no one devoted to that department ought to be without the volume.

ART. VIII.—*New Views of the process of Defecation, and their application to the Pathology and Treatment of Diseases of the Stomach, Bowels, and other organs; together with an Analytical Correction of Sir* CHARLES BELL*'s Views respecting the Nerves of the Face.* By JAMES O'BEIRNE, M. D. Surgeon-Extraordinary to the King, &c. Dublin, 1833. Pp. xvi. and 286.

THE two treatises contained in this volume owe their origin, we are told, to the author's investigations into the nature and treatment of tetanus, to a forthcoming work on which they were at first intended to form an appendix. The importance, however, which he attributed to his views, and the wish to ascertain their correctness before reasoning from them, induced him to publish them in the present form.

We suspect that Dr O'Beirne has overrated the value and accuracy of his views of defecation; but that the reader may judge for himself, we shall state briefly the commonly received opinion of the process, then the theory maintained in the work before us, and lastly, some of the objections to which it is liable.

It is generally believed that the contents of the small intestines are poured in a fluid state, and in minute quantities, through the ileo-cœcal opening into the cœcum—that they accumulate there for a considerable time, and become gradually less fluid, in consequence of the absorption of the thinner part —that the accumulation and increased acridness of the stercoraceous mass stimulate the cœcum to contract and propel its contents along the ascending colon, then return into the ileum, being prevented by the ileo-cœcal valve—that they traverse slowly the remainder of the colon,—and that by the time they reach the sigmoid flexure, their colour, odour, and consistence are considerably altered—that in the sigmoid flexure a still farther change takes place in their consistence becoming still more solid—that they are then gradually and imperceptibly impelled into the rectum, where they accumulate, in consequence of the dilatable nature of the part and the powerful opposition of the sphincter, till by their weight and irritating qualities the gut is stimulated to contract, causing the uneasy feeling which impels us to relieve ourselves—and that the final expulsion of the feces is accomplished by the contraction of the rectum, aided by the united action of the diaphragm and abdominal muscles. This account of the process is supported by a minute examination of the structure of the parts. Into this we have not time to enter, but refer the reader to the description given in the treatises of Portal, Bichat, Cloquet, and Quain.

Dr O'Beirne conceives that the unloading of the cœcum and filling of the sigmoid flexure is a process not slowly, but speedily accomplished, (p. 25;) that when the sigmoid flexure is filled, it ascends from the cavity of the pelvis into the left iliac fossa, and, "in proportion to the rapidity and degree of its distension, begins to turn upon the contracted rectum as upon a fixed point, until at length * * * it directs its greater arch forwards and upwards, and its lesser backwards and downwards," p. 18; by which movement the contents are brought somewhat perpendicular to, and so as to bear directly on the upper extremity of the contracted rectum—that their weight being insufficient to force a passage downwards, "they are compelled to remain stationary until such time as the increasing accumulation and distension produce a sense of uneasiness sufficient to call into action those great expulsive agents, the diaphragm and abdominal muscles," which, acting simultaneously, "compress the abdomen and its contents on all sides, urge the free and floating mass of small intestines downwards, and even into the cavity of the pelvis, so as to press forcibly upon not only the distended sigmoid flexure, but also on the cœcum and urinary bladder,"—that the contents of the distended flexure being "acted upon in every direction, so as to be impelled against the upper extremity with a force sufficient to compel the parietes of this intestine to separate and afford a free passage," the rectum is filled and roused to drive its contents into the pouch, where "their accumulation produces a great sense of weight and uneasiness in the perinæum, an urgent desire to go to stool, and a nisus, by which the sphincters are forced open and dilated, and the final expulsion of the egesta is effected.

He farther maintains, "*first*, that the cœcum is considerably distended before it is unloaded; *secondly*, that the whole of the mass by which it is distended, and no more, is transferred at each time that it is unloaded; *thirdly*, that, at the moment of going to stool, there is generally one mass of fecal matter in the cœcum, and another in the sigmoid flexure, and, consequently, that these may be considered as the measure of the quantity discharged when the bowels are said to be freed; *fourthly*, that as two distinct acts of expulsion are always required before a healthy person finds his bowels sufficiently freed, the capacity of the cœcum may be received as the measure of that of the rectum." In another place he asserts, "that in the healthy and natural state all that part of the rectum above its pouch is at all times, with the single exception of a few minutes previous to the evacuation of the bowels, firmly contracted, and perfectly empty, at the same time that the pouch itself, and also the sigmoid flexure of the colon are always more or less open and pervious; *lastly*, that the *sphincter ani* muscles are merely subsidiary agents in retaining the feces."

In support of these doctrines, Dr O'Beirne adduces the following facts and arguments;—that the accumulation of excrement in the rectum would derange the ordinary functions of the bladder, and, by irritating the *sphincter ani*, prevent man from retaining his feces;—that "the circumstance of nature forming one of her chief depots of excremental matter in a part of the intestinal canal so close to, and continuous with, the rectum as the sigmoid flexure is, appears altogether inconsistent with the idea of a free passage between these portions of the canal;"—that there is considerable opposition to the ascent of an enema even under the most favourable circumstances;—that the finger of the surgeon, and the pipe of the injecting apparatus, however long, have very rarely, if ever, been found soiled with fecal matter when withdrawn;—that the membranous filaments which are sometimes found in the rectum, but rarely, if ever, in any other part of the intestinal canal, prove that the lining membrane must have been in contact, and the rectum empty for several hours;—that the sphincter muscles of the anus are considerably weakened in *prolapsus ani*;—that in the operation for *fistula in ano* they are completely divided, and cannot act as sphincters;—that not only these muscles, but also a portion of the rectum above them, are occasionally destroyed by "venereal, cancerous, and other ulcerative processes," yet it rarely happens that the power of retaining the feces is at all impaired;—and that, from numerous experiments, he found that on passing an œsophagus tube half an inch up the rectum, neither flatus nor feces escaped;—that about an inch and a-half higher nothing escaped, but the tube could be moved about freely in a space ascertained to be the pouch of the rectum, perfectly open and empty;—and, *lastly*, that "from the highest part of the pouch to the upper extremity of the bowel it was found that the tube could not be passed upwards without meeting with considerable resistance," which continued to increase till the instrument reached the uppermost part of the rectum, when it passed rapidly forward as if through a ring, when "a rush of flatus, fluid feces, or both, took place through the tube." When this did not occur, there was a distinct feeling of the tube having entered a solid mass, and, on withdrawing the instrument, it was found covered for a few inches at its upper extremity, and with its eyes plugged up with solid excrement,—and that this appearance was always confined to the upper extremity.

To enter into a complete refutation of the author's theory would occupy too much space. We shall therefore content ourselves with stating a few of the principal objections which may be made to it. 1. The ability to retain the feces evidently depends on the irritability of the intestinal canal and the muscular power of the individual. In the infant, in whom there is great irritability and very little muscular power, the desire to pass the feces is very frequent; in childhood it is less so; and, as man advances in years, he finds it gradually more and more easy to retain them for an indefinite period. By the time he reaches old age, the rectum has been by degrees accustomed to bear distension, and the irritability which was so great in infancy is nearly exhausted, so that, if the power of the sphincter be weakened, it has not to contend against irritability of the intestine. 2. It is true, no doubt, that the presence of feces excites the irritability of the rectum, but it requires a certain quantity to produce this effect; and as well might the author deny the power of the bladder to contain urine, because it contracts when distended to a certain degree, as assert, that, because the rectum contracts on the application of a certain stimulus, it is capable of bearing no distension whatever for any length of time. 3. We know that irritability of the bladder is produced, when, from stricture, the rectum is unduly distended by feces; but it is the undue distension which produces this. 4. The structure of the sigmoid flexure, and of the upper part of the rectum, will explain how the feces are detained in the former. 5. When a large quantity of fluid is thrown into the rectum, the sudden distension excites the irritability of the rectum, and thus opposes the ascent of the enema. If this be correct in ordinary cases, it will occur in a higher degree where there previously existed any irritability of the intestine or neighbouring parts. 6. The finger of the surgeon, and the pipe of the injection apparatus, are soiled in a due number of cases by fecal matter. 7. The membranous filaments found in the rectum are the product of previous inflammation and irritability, and consequently, contraction would occur during the continuance of the inflammatory action, thus confining the feces to the sigmoid flexure. 8. The sphincter in *prolapsus ani* still acts; and when, in a case of *fistula in ano*, the sphincter is completely divided, the rectum is so irritable and contracted, as to oppose the passage of the feces from the sigmoid flexure. 9. We are not aware that the sphincter and part of the rectum are ever destroyed by venereal ulceration; but, if such were the case, the latter part of the last sentence would account for the retention of the feces. 10. There is no symptom of genuine cancer of the rectum so invariable as inability to retain the feces, which constitutes one of the most painful and loathsome circumstances attending the disease.

We have thus disposed of all the author's arguments except that founded on his exploration of the rectum, which we conceive to have been performed in a manner likely to lead to erroneous conclusions. The instrument which he used was calculated to mislead; and no results at which he arrives by means of it can be listened to for a moment, when opposed to the views of the most accurate anatomists and physiologists of the day.

Our limits do not permit us either to enter upon any of the cases with which he has taken up the greater part of the volume, or to examine his analytical correction of Sir C. Bell's views respecting the nerves of the face; but we cannot take leave of this work without stating unreservedly our opinion of the manner in which it is got up.

By enveloping his views in a mass of unnecessary words and extraneous matter, and spreading over 286 pages what might have very well been contained in thirty, the author has succeeded in throwing a degree of obscurity over them which is not very easily penetrated. The sentences are long and ill-constructed,—the reasoning diffuse, and frequently not to the point,—and there is throughout the whole work a degree of egotism and *modest* assurance, by no means becoming a man of science. We trust that, in his forthcoming work on Tetanus, the author will speak with a little more diffidence of his own powers, and that he will endeavour to express himself perspicuously and reason accurately.

ART. IX.—*A Bill to amend an Act of the fifty-fifth year of his Majesty King George the Third, for better regulating the Practice of the Apothecaries throughout England and Wales.* Ordered by the House of Commons to be printed 31st May 1833.

Statement in behalf of the Royal College of Surgeons of Edinburgh, 28th April 1833.

The Petition of the President and Fellows of the Royal College of Physicians in Edinburgh, May 1833.

Memorial of the Society of Apothecaries to the Right Honourable Lord Viscount M*ELBOURNE*, His Majesty's Principal Secretary of State for the Home Department, 8th May 1833.

THE expiration of the period assigned for the experimental trial of the Apothecaries' Act, indicates that the time now approaches for canvassing the merits of that measure, and considering the propriety of granting to the Worshipful Society a renewal of the powers with which they have for several years been invested.

It was not to be expected that the approach of such a crisis could be viewed with total indifference by the members of the profession. Such a thing was precluded by the extent of domination at which the Worshipful Society aspired; and as the effects of their authority had been already sensibly felt in a variety of modes, it was anticipated that these effects would lose none of their force by continuation, but would increase in extent and power with the growth and age of society. Various divisions of the profession have accordingly taken more or less active steps in expressing their sentiments as to the injurious effects of the powers which the Apothecaries' Act confers, and have undertaken to show that the authority which they have hitherto exercised of preventing all persons, however qualified otherwise, from practising as general practitioners, and dispensing medicines, unless previously satisfying the Worshipful Association, is in a very serious degree injurious both to the interests of medicine as a profession, and also to the public interest. All those who ventured to express any degree of dissatisfaction with the claims of the Worshipful Society, it was natural to suppose, would receive a due proportion of their hatred, indignation, and abuse; and accordingly, the Scottish Universities, but especially the Medical School of Edinburgh, whose pupils had the largest interest at stake, and were most deeply aggrieved by the exercise of the powers conferred by the Apothecaries' Act, and who had the hardihood and impertinence to express their injuries, have been accused of all manner of enormities, in which personal interests and the usual cant and declamation about monopoly and illiberality, form the least and most insignificant of the charges.

To these silly ebullitions of spleen, we think it unnecessary to pay any regard; and we should have avoided all mention of the Apothecaries or their Act at the present moment, and left the whole to the deliberate consideration, the discretion, and wisdom of the legislature, had we not perceived that there is at present a strong wish to bolster up the pretensions of the Apothecaries Company, by means of misrepresentation, and exaggerated and distorted statements, with a plentiful admixture of splenetic invective,—not from any love to that respectable part of the community, but from a deep, fixed, and determined hatred to the Scottish Universities, and every one who avails himself of their means of instruction. Of the causes of this we say nothing. We look merely to the effects as they are displayed.

We do not think it requisite to advert more particularly to this sentiment, on which we should have wished that we had not been compelled to look at all. But we shall now make a few observations on the claims of the Society, on the effects of their act, and on other matters connected with it. In so doing we shall abstain from all unnecessary reference to the proceedings and motives either of the apothecaries or their adherents; we shall give them nothing but facts and fair arguments; and we shall see whether, on a dispassionate view of the question, the Apothecaries' Company have succeeded in showing that they are entitled to sway the sceptre which they so confidently grasp.

It is well known, or, at least, it ought to be well known, that the business of practising the healing art is shared in England and Wales by four classes of practitioners,—physicians, surgeons, surgeon-apothecaries, and apothecaries.

Physicians, properly so named, are necessarily rather thinly sown; and in towns with 50,000 or 60,000 inhabitants, though there may not be fewer than three or four doctors of medicine, in general one only is in good practice. The reason of this is manifest. Though diseases falling to be treated by physicians are the most common with which men, women, and children, are attacked; yet, as the education of a physician is always long and elaborate, and therefore expensive, and as the services of this branch of the profession must therefore be more highly remunerated, there are only a few physicians in the largest towns, and none in small ones; and the great mass of invalids apply for the advice and attendance of the surgeon, the surgeon-apothecary, or even the mere apothecary, who therefore act as ordinary medical attendants in 999 cases in the thousand.

In some instances, however, practitioners with the complete education, and with the degree of M. D. give advice and attendance as ordinary practitioners, and act occasionally as surgeons and accoucheurs; and, waiving entirely their dignity as physicians, study to afford professional assistance in any manner in which they can be useful. However much this apparent descent from the supposed dignity of the medical graduate may seem an object of ridicule or even contempt, common sense and experience will reply that it is neither. A professional man in the early part of his career, with the rank and title of a graduate of a respectable University, with all the scientific and professional accomplishments necessary to constitute an able physician, and even with as much skill and experience as his years can command, may be, nevertheless, quite incapable of convincing the public of his capacity for being employed only in extraordinary and difficult cases after the other medical attendants have given their cares in vain; and in these circumstances he may, by adhering to the strict etiquette, be, for a long series of years, nay, a whole lifetime, precluded from professional occupation, to the injury, not only of his own prospects, but with great disadvantage to the interests of the community in which he resides. He therefore, with reason, acts rather according to his standing in the profession than according to his rank and attainments, and eventually ascends, if circumstances permit, from the station of general practitioner and ordinary physician to that of consulting physician.

Surgeons proper are also not very numerous, though more so than physicians, because those who devote themselves chiefly to the treatment of surgical diseases, and the performance of operations in large towns and cities, are very much employed as ordinary medical attendants; and even in London and other populous places, where division of labour is admissible in every respect, by far the largest part of the business of every surgeon consists in the treatment of medical diseases. In provincial towns, the surgeons engross a still larger proportion of the management of medical diseases; and throughout the greater part of England and Wales, surgeons may be regarded as the ordinary medical attendants. Most of these surgical practitioners are members of the Royal College of London, or licenciates of the Royal College of Edinburgh, and several unite the diplomas of both bodies.

Most of these, indeed we may say the whole of these surgeons, and many of those practitioners having the degree of Doctor of Medicine, were and still are in the habit, from convenience, of keeping a supply of the medicines and pharmaceutical preparations used in ordinary practice, for the purpose of dispensing and administering to their patients as circumstances require. Previous to the enforcement of the Apothecaries' Act in 1815, this class of practitioners, with graduates acting as general practitioners, were perfectly entitled to dispense medicines to their own patients, without let or hinderance, as it was always understood that the diploma of the graduate, or the license of the College of Surgeons, conveyed the title of doing so. Since the period, however, when the Act of the Apothecaries' Company came into force, every individual of this class of practitioners, who came into practice since 1815, is prohibited from keeping or dispensing medicine or any pharmaceutical preparation, unless he has previously submitted to examination at the hall of the Worshipful Company. No length of study, or diligence in the acquisition of knowledge,—no extent of professional education obtained at universities, however celebrated,—no diploma of any college or any university, however competent to judge,—is allowed to be adequate to stamp the ability of dispensing, as general practitioners, a dose of calomel, a cathartic draught, or a cough-mixture, without the condition of an apprenticeship of five years duration, and a previous examination at the Apothecaries' Hall.

The result of this change is, that all those gentlemen who have commenced their education subsequent to the operation of the act, must either serve an apprenticeship of five years duration with a member of the Society, or with a fellow of the College of Surgeons of London, or with one of that of Edinburgh,—and undergo examination at the Apothecaries' Hall,—or must relinquish the prospect of dispensing medicines to their own patients, and, in short, must thereby preclude themselves from the duties and practice of the general practitioner. It is quite clear, that, of the great multitude of medical practitioners annually issuing from the different schools of education, but a very limited proportion can have either the means or the interest to commence at once as prescribing physicians and surgeons, and consequently, that this exclusion is equivalent to an exclusion from the great object of professional study,—the attainment of employment sufficient to maintain them in the rank and character of gentlemen.

The two conditions now mentioned, the one of the five years apprenticeship, and the other of examination by the Apothecaries' Company, constitute the peculiar features of hardship of the Apothecaries' Act, by which that society have been hitherto partially enabled, and will be more completely enabled, to exercise a most oppressive species of tyranny over the profession, to the injury of medicine as an art, and to the detriment of the public interest. This it will not be difficult to show in a very short time.

The method of acquiring the knowledge of a liberal profession by means of apprenticeship, is by no means well calculated for the advantage and improvement of the pupil. When the practical duties of a profession consists of a certain number of mechanical processes and manœuvres, or a specified set of forms, it may be requisite to spend a considerable portion of time in acquiring the knowledge of them; and these may be so numerous, varied, and complicated, that it is quite impossible to expect them to be acquired satisfactorily in less than several years. It must be further supposed, however, that the master who professes to teach all these manifold, various, and complicated processes, is intimately and perfectly acquainted with them himself, and that the pupil will have no occasion to apply to any other instructor for information, either more particular or more extensive, than his master can supply on the different branches of his art. This method is found to answer indifferently well in the case of the mechanical arts, in which there is much occasion for mere manual dexterity, and little room for the exercise of intellect or judgment.

In these arts, however, it is not to be forgotten, that the purpose of the apprenticeship is not only to give the master ample opportunities of instructing his pupil in all the mysteries of his craft, but to enable him, after the pupil has been suitably trained, and perfectly practised, to derive from the exercise of his diligence and ingenuity, some advantages, as a compensation for his previous instructions.

The art of healing diseases is placed on a footing altogether different from that of the mechanical arts, and it is even very different from that of the liberal arts, which depend on the application of the principles and deductions of the merely physical sciences. This is not the place to enter into any disquisition as to the nature and objects of medical science, or the difficulties with which its practice is embarrassed, and the acquisition of a sound knowledge of its principles is accompanied. But it must be remembered that it does not consist in the knowledge and employment of a certain number of routine and undeviating processes, which are in every case to be performed in the same mode, nor does it consist in the mere preparation and administration of medicines of a certain kind, and with certain effects.

A medical practitioner is not a mere mechanical drudge, who, in any given disease or injury of the human body, is to proceed in a certain definite way to remove one and rectify the other, by administering a certain number and quantity of medicines, and performing a certain number of ceremonies and operations. He must be an observing and reflecting being, who must vary his therapeutic measures according to the kind, stage, and degree of the disorder or injury, the age, sex, strength, and constitution, and even the family or individual peculiarities of his patient.

A primary fact, of which the Society of Apothecaries may be not altogether unaware, but which they have certainly kept most completely in the back ground in all their statements, is, that diseases, not a few, may be cured altogether without either the preparation or the administration of medicines, and that it is a matter of infinitely more consequence to the successful treatment of disease, to be able to recognize its presence and distinguish its exact nature, than to be able to prepare and compound a certain number of drugs. It may, and does often happen, that the accurate knowledge of a disease tells the conscientious practitioner, that the administration of medicine is positively injurious, and that, however profitable it may be to him to add draught to draught, pill to pill, and bolus to bolus, it is aggravating the severity of the patient's disorder, prolonging its duration, and perhaps placing him every day at a greater distance from the power of being benefited by more judicious treatment.

What, then, is the grand purpose of the apothecary? Is it not to find reason to exhibit tonics, antispasmodics, and carminatives, analeptic juleps, and cordial drops, cephalic tinctures, and alterative pills,—all for the purpose of enabling him to establish a claim for a certain quantity of current coin, to which he is conscious he could not be entitled on the ground of mere professional advice and attendance? Most assuredly, if this be not the plain English of their pertinacity in adhering with such obstinacy to their purpose, it will be very difficult for their best friends to extract any other interpretation. They indeed talk somewhat of the study of disease, and so forth; but when they dwell so much on the apprenticeship and its appendages as the only road to its knowledge, we really must acknowedge our incapacity to see the conclusiveness of their arguments.

Now, in the application of these principles to the mode of learning the business of medical practitioner by apprenticeship, we will not begin by asserting that apprenticeships are utterly useless, and are positively detrimental to the parties concerned; but we shall compare the mode of learning the profession by apprenticeship with that by other means, and leave our readers to judge of the comparative advantages and disadvantages.

A liberal and scientific art like that of medicine may be learned in two modes. As it depends on many separate sciences, as anatomy, morbid anatomy, chemistry, physiology, and pathology, therapeutics, and pharmacy, it may either be studied by previously studying each of these, its elementary or fundamental sciences, accurately and attentively; or it may be attempted, as it was of old, by studying the phenomena of disease directly in the persons of the sick, and observing in them the effect of various remedies. No one who knows anything of education will say that the first method is not the most natural, the most rational, and the most easy, both for teacher and taught, and the one least likely to create erroneous conceptions and mistaken views in the mind of the student. In this method the student is at once introduced to the causes and principles of many circumstances which he could not otherwise comprehend; and after studying these so long, and so repeatedly, as to become familiar with them, he begins to understand the nature of both the phenomena and symptoms of disease, and the reason of the methods employed to cure it. A competent knowledge of anatomy tells him the situation of parts; physiology shows him, that, as certain functions are deranged, certain parts, there is reason to believe, must be in an unsound state; chemical knowledge directs his attention to changes in the characters of the fluids, whether excreted or elicited by accident or art; pathology lends its aid to ascertain the nature of the morbid action; and therapeutics and pharmacy supply him with the principles and means to mitigate, to subdue, and to remove it.

The student previously supplied with these elementary branches of knowledge, enters the hospital, and commences his clinical observations, and at the same time commences his course of instructions in practice. He is then enabled to understand what is meant by diseases of the brain, the lungs, or the intestines; diseases of the bones, the ligaments, or the tendons; diseases of the skin, the mucous membranes, and the serous membranes; because he has seen all these tissues and organs, he knows their anatomical constitution, their physiological uses, and their morbid liabilities. Instruction conveyed in this manner is clear, methodical, and natural; and the necessary result is, that in a short time, and by insensible steps, he becomes perfectly acquainted with diseases, their symptoms, their effects, and their treatment.

Let us now look to the other mode of teaching medicine, and consider its merits. Introduce a young man of seventeen or eighteen, with little or no preliminary knowledge of anatomy, physiology, and pathology, to fifteen or twenty cases of disease in St Giles's or the Cowgate, in the wards of Guy's, St Bartholomew's, or St George's Hospitals, or those of the Royal Infirmary; tell him here is a case of *bronchitis*, there a case of pericardial inflammation, here a case of chronic pleurisy, there a case of diseased bladder, here a case of softening of the brain, there a case of diseased kidney, here a case in which general dropsy seems ready to suffocate the patient, and tell him it is diseased liver, there a case in which a livid countenance, difficulty of breathing. unless in the erect posture, and scanty dropsical effusion in the extremities, indicate disease of the heart;—and you will absolutely bewilder him. He will indeed have seen a great deal of disease, much medicine ordered, and, if he continues to accompany the physician, he may see several dissections; but the whole will be confusion, disorder, obscurity, and complication. The objects are too manifold and too complex to be seen distinctly; the student does not know at what point to begin, and, though often told, repeatedly forgets; he tries to remember symptoms, and their connection with the organs and tissues alleged to be affected; but his anatomical knowledge is too penurious, limited, and vague, for this purpose; he studies, he labours, and does all he can to form some idea of the disease of the bronchial membrane, or the *pericardium*, the *pleura*, the lungs, the liver, or the heart; but how can he do so who has never seen any one of these parts attentively, or studied their structure, situation, or relations sufficiently, to enable him to comprehend their morbid conditions. Then as to remedies, he sees blood-letting ordered in one case, cupping in another, a blister in a third, nauseating expectorants in a fourth, diuretics in a fifth, and so forth; but he has not and cannot form to himself a single distinct idea of the reason or object of any one remedy, or set of remedies, prescribed. The whole, in short, is one great chaotic mass of confusion, obscurity, and incomprehensible disorder; and all because he has begun at the wrong end; all because he has been introduced at once to the complexities of disease as they occur in nature, without the previous explanations which are afforded by a regular and systematic study of the elementary facts of the science.

Will it be believed that this is really and truly what the Worshipful Society are proposing to do? Will it be credited that this is the method according to which they are going to instruct, and have actually been instructing, the general practitioners for the last fifteen years? We know that they and their friends and abettors will stoutly deny the whole, and contend that such is not the intention of the Act, and is not its effect. For this we do not care. We are accustomed to deal with misrepresentation; and let the apothecaries and their friends assert what they please, we maintain that the effect of the apprenticeship, if it does any thing at all, is to thrust the student at once, without elementary principles, or the guidance of fundamental education, into the practice of medicine and surgery, in all its complexity, discordance, and obscurity.

It is impossible for those not actually engaged in the business of educating young men to comprehend or appreciate one tithe, nay, one-hundredth part of the evils resulting from this system. Some young men are utterly and entirely disgusted with the business the first month, and retain this feeling through the course of a long life. Sickened with the practice of a profession, in which they see no general principles, no beautiful symmetrical simplicity, no regularity of effects and causes, and in which, from the preposterous mode in which they have been initiated, they despair of finding any,—they naturally, but very absurdly, imagine it is all obscurity and confusion, and the whole business of treatment a system of random hap-hazard measures. This delusion may last long, and it makes its unhappy victims either ignorant empirics and charlatans, or mere superficial dispensers through life. Others get into a careless routine method of practice, in which, as they see no occasion for the exertion of intellect or reflection, they never either reflect or reason; and the whole business of treating patients is reduced, as their patrons wish it to be, to a system of routine and mechanical administration of drugs,—the same endless round of powders, pills, draughts, and boluses. All of them imbibe many absurd and erroneous notions regarding the functions of the human body; and these it is often utterly impossible for lectures of any kind, or any place, to eradicate. Such is a fair view of the least of the evils of the method of education by apprenticeship. We doubt not that many more actually take place, and could be presented. But these, we conceive, are sufficient to demonstrate the inherent and insurmountable absurdity of a system so preposterous.

Let us advert, however, to the effect of apprenticeships viewed as means of education. When a young gentleman decides on following the profession of medicine, the first question is the particular branch,—physician, surgeon, or general practitioner; and the next comes to be the most convenient and suitable mode of initiating him. If he is destined to be a physician, it occasionally happens that he is sent forthwith to some university, in order to proceed in the regular manner. It sometimes happens, however, that it is thought expedient for him to begin the business under a surgeon or surgeon-apothecary, or, in other words, a general practitioner. It is further manifest, that whenever a young man is destined for the latter department of the profession, this is the most usual course followed.

At the age of sixteen or seventeen, therefore, or even later, when the young candidate for the honour and responsibility of man-midwife and surgeon in ordinary is emancipated from the immediate dominion of the master of the grammar-school, he is forthwith placed under the care of the family medical attendant, or the nearest respectable surgeon-apothecary as an articled apprentice of five years' duration. He is then initiated into the profound mysteries of the pestle and mortar, the moulding of pills, the mixing of ointments, the preparation of juleps, and all the *arcana* of the adept apothecary. With this important duty he occasionally combines that of conveying the bottles, boxes, and packets to their respective destinations, until he becomes intimately acquainted with the localities of his master's practice, and the beat of his visits. At the end of eighteen months or two years, he is permitted to visit one or two of the patients along with some of the senior apprentices, and he witnesses, along with these learned Thebans, the usual mode of treating patients under the care of the general practitioner. At length, after other eighteen months or two years more, he is entrusted with the care of a few cases; and as he himself becomes a senior while others drop away, and juniors are placed under him, he is elevated from the inglorious drudgery of the pestle and mortar, and gradually, but finally, is raised to the dignity of trotting or galloping over the parish on a smart gelding, as the representative of the master among that class of patients, whose finances are not understood to be capable of rewarding the attendance of the great man.

In the meantime, it is naturally asked by the parents or guardians of such a young man, what provision is made for his systematic and elementary instruction? He is indeed initiated in the practical details of seeing patients, and prescribing, or sending, or administering medicines; but where are the means by which he is instructed in the great elementary principles of medicine?

In London, indeed, and in such large towns as Bristol, Birmingham, Manchester, Leeds, and Liverpool, where there are medical schools and lecturers on various branches of medical and surgical knowledge, the apprentice may have the means, if his master allows him leisure and opportunity, to obtain some knowledge of anatomy, physiology, chemistry, pharmacy, nosology, pathology, and surgery; and we admit, that several of the apprentices bred in these towns are really well initiated into these fundamental branches of medical knowledge. But how is it possible to obtain this part of the sufficient education in towns in which these opportunities do not exist? There are in England and Wales many towns with population between 10,000 and 40,000 or 60,000 souls, in which there is not a single medical lecture delivered, and in which, consequently, the apprentices during the five years, or even if they are allowed to get off at four, learn nothing, and can learn nothing but the routine of a random medical practice, without the guidance of general principles, and without even knowing a single reason for one of the practical measures which the master is in the daily habit of ordering.

It is of no avail to tell us that this is not the fact; that the pupils are taught the principles at the same time with the practice; and that the master either undertakes to instruct his apprentices in the elementary principles, or allows them to go to places where they can enjoy those opportunities. We maintain that it is physically impossible that in any place, excepting those above-specified, the apprentices can have these opportunities, and that at the end of the five years they are, and must be, ignorant of all the most necessary and important knowledge for a young man to possess in entering on medical practice. A young man who has commenced his apprenticeship at the age of sixteen or seventeen, as we have supposed, quits his master at twenty-one or twenty-two, ignorant of the most common facts regarding the structure and functions of the human body. This is applicable to all the apprentices educated at such places as Bath, Brighton, Chichester, Winchester, Southampton, Canterbury, Gloucester, Worcester, Northampton, Norwich, Leicester, Nottingham, Derby, Lincoln, Lancaster, York, Durham, Newcastle, and many similar places too numerous to recount, at neither of which there is a single lecturer or lectureship of any kind.

That such is the actual effect of this measure of five years apprenticeships, we know from numerous examples within our own personal knowledge. We have known instances of apprentices who have finished their statutory period, coming to this city for the purpose of attending lectures, and ignorant at this time of the most common anatomical and chemical principles. We have known not a few examples of this kind, in which the individuals, simply from the circumstance of not residing in a town with a medical school, did not know the number of bones in the fore-arm or leg, although they had seen the treatment of fractures of both; did not know the anatomy of the shoulder-joint, though they had assisted to reduce luxations of it; knew nothing of the site of the stomach and course of the intestinal canal, though they had repeatedly given to many persons medicines to act on both; and who knew not the chemical characters of alkalis and acids, though in the daily habit of preparing mixtures containing either or both. That such practitioners order mixtures of sulphate of magnesia and phosphate of soda, or sulphate of quinine and tartrate of antimony, is not wonderful. Such evils are not the fault either of the young gentlemen themselves or of their masters; but they result from the system under which the Act compels them to be educated.

All apprentices, therefore, educated by the surgeons or surgeon-apothecaries of such towns, must, at the close of their apprenticeship, proceed to London, or some similar place, in order to obtain that course of systematic instruction which is requisite to enable them to understand the just application of the practical measures, the knowledge of which they have previously acquired. In so doing, however, one of two effects results. After a young man has already spent much time and money in obtaining the practical knowledge of his profession, his friends, naturally anxious to economise both of these commodities, are generally desirous that he should spend the shortest possible time prescribed, for the purpose of acquiring what is called by the Apothecaries a *sufficient medical education;* and the result is, that this part of his instruction, and especially the important business of anatomical study, pathological anatomy, and clinical medicine, are obtained in a very hurried and imperfect manner.

On this principle we daily hear them putting questions and making proposals by what means they may shorten their abode here or in London, in order to be able at a certain period to enter on business; and the grand and primary cause of all this acceleration and abbreviation towards the latter part of their career, is the long time necessarily spent in the apprenticeship at its commencement and middle. Five years between fifteen or sixteen, and twenty or twenty-one, make such an immense part of the active period of the life of a diligent young man, that when he finds he has spent them in acquiring the knowledge of a few forms, and in repeating the 600th time the same process, without novelty, variation, addition, or emendation, he begins to feel the irresistible necessity of converting his actual acquisitions to some useful purpose, and to commune with himself, now that he has satisfied the inexorable apothecaries, whether he cannot, without further delay, satisfy the public that he is competent to drug their persons and drain their purses. It is easy to see that in such a frame of mind he will not be very desirous to spend more time or money in attending lectures or visiting hospitals.

The Worshipful Company themselves admit that the number of students under the act attending the medical schools now alluded to in the different provincial districts, amounts, including those of London, which are perhaps not less than a half, to 1300 nearly, and that 2000 are serving apprenticeships in other parts of the kingdom; that is to say, 2000 at the lowest computation are studying medicine by routine practice, first for five years, without being taught any elementary science, or initiated into the principles of the art, and must then proceed to London, Edinburgh, or some similar place, and hurry over, in the short space of two seasons or 18 months, in an imperfect and hasty manner, a course of study which, without the apprenticeship, they might have pursued in a deliberate and systematic method for the space of three years and a-half or four years. If to this 2000 we add the proportion already in London and Edinburgh, of those who have been apprentices, and who are now undergoing the same ordeal, the number actually taught in this preposterous method will not be one under 2500, and it may amount perhaps to nearly 3000. Such are the results of the apprenticeship system.

Now, let the Society and their friends assert what they please. We maintain it is impossible that it can be otherwise, so long as the clause regarding apprenticeship is imperative and indispensible, unless they were to resort to the extraordinary and impracticable measure of establishing schools with hospitals, dissecting-rooms, and lectureships, in every town, great and small, in England and Wales, in which apprentices are taught and apprenticeships are served. We believe there has been some report of increasing the number of these schools, and, above all, of establishing one at Newcastle, which would certainly, under the circumstances, be requisite. But this solitary addition, or even half a dozen new schools, would be of no use, unless there was one in every town of a population of from 2000 to 4000. To this part of the scheme, however, it is evident there are insurmountable objections and insuperable difficulties; and the 2000 unhappy apprentices who are distributed through the unschooled parts of the country, must continue to serve their full five years in learning routine, and then come to London or some similar place, and obtain the sufficient education of the Society, to the great waste of time and depletion of their purses.

Another alternative, however, remains. To prevent by anticipation the evil specified, and after several persons have become wise by the experience and example of others, the young man, instead of being consigned to the provincial surgeon or surgeon-apothecary, is articled to a London surgeon-apothecary, where he may at once serve the prescribed time of the apprenticeship, and acquire a sufficient medical education by attending the lectures and hospitals of the metropolis.

To the latter course no reasonable man can offer any just objection, unless simply this,—that the apprenticeship must then be equivalent to *no* apprenticeship whatever, since every one who knows what the business of London apothecaries is, must be aware, that, if the apprentice performs his part of the duty of the surgery or laboratory, he can attend no lectures, dissecting-rooms, or hospitals, and if he does attend lectures, dissecting-rooms, and hospitals, he cannot be of much use to the master, either in the composition and preparation of medicines, or even in visiting his poorer patients. The apprenticeship, in such circumstances, is an apprenticeship in name only; and if it be merely so in name, the name and form, as well as the reality, ought to be abolished. To this course, however, which would be much too candid and straightforward for parties so deeply interested, a small objection is immediately presented in the circumstance, that, with the abolition of apprenticeships, must come an abolition of apprentice-fees,—things often of a very convenient and acceptable description, and the not less serious inconvenience of an absolute outlay of money in the form of wages or salary to one or more surgery-men, or medicine preparers, who would then become necessary, when apprentices were no longer to be procured for that purpose.

It thus appears that one of the most remarkable effects of the regulation regarding the five years apprenticeships is to provide the London apothecaries at a very cheap and easy rate, and even with the advantage of positive gain, with the means of carrying on their business; and if this clause were abolished, it would operate directly in withdrawing a source of emolument by no means despicable, and augmenting the necessary expenditure of conducting their business. Now we will be so generous as to avow that we have no desire to strip them of this source of emolument, which, we believe, is in the case of certain masters and apprentices perfectly legitimate. Nay, we have no objection that every one who chooses to avail himself of the advantages of the apprenticeship, real or supposed, should do so without any interruption. But as we do not perceive, that apprenticeships possess the advantages which the members of the Apothecaries' Society represent them to do, we claim for others the same liberty and toleration which we allow the apothecaries;

and we contend that, by spending at some respectable school of medicine, no matter where, providing it presents dissecting-rooms, a good hospital or two, with diligent clinical instructors, chemical laboratories, and museums illustrative of healthy and morbid structure, the five years recommended to be spent with the apothecary, a set of medical practitioners will be produced, superior in judgment, in experience, in the discrimination of diseases and the knowledge of the best means of treatment,—in short, in every qualification which can constitute an accomplished practitioner,—by an infinite number of degrees, to those bred up under the eye of the apothecary, and according to the system of the apprenticeship.

We shall, however, to give the Worshipful Association perfect fair play, examine this matter a little more minutely, according to their own representations.

The Worshipful Society, after informing the Right Honourable Home Secretary, that the clause enforcing the five years apprenticeship was not proposed by the Society, but was introduced into the Act in the House of Lords, adds, "that a preliminary education in the nature of an apprenticeship is highly necessary, as well to lay the foundation of future acquirements as for the moral control of students from the age of sixteen to twenty-one, which control cannot be exercised at any medical school or hospital."

Now if this representation be attentively examined, it will lead to inferences which the apothecaries, long-sighted as they are, do not perceive. The necessity of preliminary education every one will admit; but while it may be doubted what preliminary education a young man can obtain in the shop or surgery of a general practitioner, we do not perceive, that it necessarily requires the condition of the apprenticeship. What are the exact branches of study understood to be comprised in this preliminary education the Society do not, and, we believe, have not specified, even in the dissertations of their great mouthpiece Mr Alcock; and a young medical wit may be employed in witnessing the frantic gambols of cats maddened with valerian, or squirting water through the large syringe at the urchins in the neighbourhood, for any thing that we are informed to the contrary.

As to the moral control, to which the Society properly attach much importance, from our experience of young gentlemen, we should say, that those who require control before twenty-one, require it equally much, or rather in a greater degree, for several years afterwards; and we are perfectly confident, that of all the young men who are most difficult to guide after twenty-one, it is those who have been controlled before that eventful age. But let the Apothecaries' Society have it their own way. Let it be supposed, for the sake of the argument, that a young man is trained for the five years under an apothecary in some provincial town, and exactly, when he attains the age of twenty-one, he is dispatched to London or to Edinburgh, in order to complete his education, by attending the prescribed courses of lectures. Is it to be supposed that the moral control of his guardian extends over him at this period in such cities? Alas! the Society of Apothecaries must know less of human nature than we gave them credit for, if they really and sincerely believe that the control, which was requisite before twenty-one, becomes superfluous afterwards.

> Unus et alter
> Forsitan hæc spernant juvenes, quibus arte benigna
> Et meliore luto finxit præcordia Titan.

One or two young men, whose prudence is greater,—whose professional zeal and desire for distinction are stronger,—who are, in short, moulded of superior materials, resist the contamination of bad example, and may pursue their studies diligently and assiduously, unseduced either by the siren indolence, or her companion vice; but the majority are

> fruges consumere nati;—
> In cute curanda plus æquo operata juventus,
> Cui pulchrum fuit in medios dormire dies, et
> Ad strepitum citharæ cessatum ducere curam,

with all its accompaniments.

The effectual method of rectifying this evil, would be, the Worshipful Society may tell us, forthwith to send every young gentleman likely to require control and inspection, to a London apothecary, who may at once act as Chiron and Mentor,—as medical instructor and moral adviser, during the whole course of his education. The Society, at least its London members, must admit, that we are really not acting the part of opponents to their schemes, when we suggest a method so perfect of procuring them the education of the majority of the general practitioners.

But to speak seriously, after all, what has the business of moral control to do with the apprenticeship? The latter is by no means necessary to the former; and most certainly, all useful advice and management as to moral conduct may be equally well given without, as with the connection of master and apprentice. The Society must further forgive us, if we doubt the competency of any one of its members to exercise much useful control over four or five, or six or eight, shrewd young men. A general practitioner is by his very occupation constantly engaged; and if he has professional occupation of sufficient extent to employ his apprentices fully, it is absolutely and entirely impossible for him to pay such attention to the moral conduct and behaviour of these gentlemen, as may always prevent them from swerving from the right path. Next to the management of his patients, and seeing that all get their proper medicines, he will find that his own family, if he has any, will be quite enough for him to look after. If the friends of a young student require him to be under inspection, the most likely way to secure it, is to place him with a clergyman, or some gentleman who has less incessant occupation than the general practitioner.

In the next statement made by the Worshipful Society, we observe, with heartfelt regret, that they not only lose their reputation as good logicians, but forfeit all claim to the character of civility and good manners. "Those persons who state that an apprenticeship is highly injurious to medical education, *must be very ill-informed on that subject;* for it is very well known, that an apprentice has the opportunity of acquiring most valuable professional information from a suitable course of reading under the direction of his master, and from seeing cases which occur in his practice." Hear this ye members of the Royal Commission for Visiting the Universities, with my Lord Haddington at your head; the worshipful Society of Apothecaries tell you to your teeth you know nothing of the matter, and that all your assertions and inferences regarding the bad effects of apprenticeships show you to be a set of very ill-informed persons! Then comes the modesty, as well as the conclusiveness, of declaring how notorious it is, that the apprentice has the opportunity of acquiring most valuable professional information from a suitable course of reading under the direction of his master! How this demonstrates the necessity or advantage of an apprenticeship we cannot perceive, since there seems no necessary connection between advice in the course of professional study, and the forms and ceremonies of apprenticeship.

As to the cases to be seen in the practice of any general practitioner, some delusion must be dispelled here. Of the 15,000 general practitioners distributed through England and Wales, we venture to assert that there are not 1000 who have opportunities of this kind to give their apprentices. Such opportunities belong to those practitioners only who are attached to public institutions, or who farm parishes; for it is a rare occurrence that the private cases of the master can be thrown open to the apprentices; and when it does occur, it is only for some particular purpose,—to assist in the performance of some operation, to introduce a catheter or bougie, or to dress a sore, or apply a bandage. The value of these small duties we do not deny; but we contend that they can seldom be learned in a satisfactory and extensive way in private practice; and the only mode in which they are perfectly acquired, is in the wards of a public hospital, and under the care of hospital surgeons. So little are the two modes of acquiring practical professional knowledge susceptible of being compared or weighed in the balance, that we venture, without the slightest fear of refutation, to assert, that, being medical or surgical pupil at a public hospital for six months' duration, will communicate a greater quantity of useful practical information, and will make a student more prompt in recognizing the characters, and conducting the treatment of disease, than six years' service with any apothecary, however diligent and assiduous.

The Worshipful Society had probably made up their minds to the weakness of the last argument; for, as if under the impression that it carried no great force or weight, they have recourse to another, in which, without attempting to deny at once and boldly the value of attendance on the physician's practice at an hospital, they tell his Lordship, that it "does not afford the student the whole of the instruction in practical medicine of which he stands in need, inasmuch as one-half of the deaths which annually take place are of children under five years of age, and of the aged above seventy, which cases," they add, "are very rarely received within the wards of an hospital, but are attended almost exclusively by general practitioners, consequently coming under the observation of their apprentices."

This is certainly a very cunning and deceitful sort of enthymeme, which is well calculated to delude those who are imperfectly informed as to the real state of the case. The Worshipful Society have expressed themselves in a very cautious and guarded manner, by stating that children under five, and adults above seventy, are *very rarely* admitted within the wards of an hospital. They could not have asserted that they *never* were, because that must have been fully contradicted; but the qualification *very rare* is the peace-maker. The fact is, that both children under five and adults above seventy are admitted into hospitals, when from that rank of life which requires hospital assistance; but while, on the one hand, the diseases incident to children under five are most frequently and conveniently treated at dispensaries, on the other, a considerable proportion of those above seventy die in work-houses and similar institutions. The latter class of patients, we may add, do not often become fit subjects for medical treatment; and the less that is done for their complaints by the doctor, and the more that is left to the nurse, the less likely will the former be to do harm. We do not think that the Association make a good figure with this argument.

The next assertion of the Worshipful Society is still more extraordinary, and could only have been elicited by the actual difficulties in which they were placed. They accuse the Colleges and Corporate Bodies of Scotland of endeavouring to obtain for their licentiates a more extensive privilege than their diploma confers in Scotland. The reason assigned for this inference is amusing. "Inasmuch as the diplomas of the University, and of the Royal College of Surgeons in Edinburgh, do not confer any right in the holders of them to practise as general practitioners in Glasgow, or within the county of Lanark, Renfrew, Ayr, and Dumbarton, over which the jurisdiction of the Faculty of Physicians and Surgeons of Glasgow extends; nor does the diploma of the Faculty of Physicians and Surgeons confer any right within the jurisdiction of the College of Surgeons of Edinburgh; nor can a person, having a diploma or certificate from any college in England, or from the Society of Apothecaries, practise in Scotland without undergoing the examination, and obtaining the diploma of the Scottish colleges."

Now, admitting the statement here to be the fact, does it prove that the Worshipful Society are liberal, because the bodies referred to are represented by them to be illiberal. If it were really the case, that the Edinburgh College did exclude all persons from practising in Scotland who had not undergone their system of education, submitted to an examination by them, and obtained their diploma, it could by no means follow that the Worshipful Society should adduce that as a reason for excluding from practice in England and Wales those who, if well-educated and sufficiently licensed or certificated by other competent boards, did not possess their testimonial of sufficiency.

The whole matter, however, is a gross delusion; and the Worshipful Society have been led into some absurd mistake by the ingenious bungling of some of their silly advisers. The true state of the business is the following.

The diploma of graduate from the University of Edinburgh is a mere testimonial of professional competency,—that the individual has resided at the University, undergone the prescribed course and form of education, has been examined as to his proficiency, and declared competent to exercise or teach his profession in any part of the world. No academical diploma does otherwise; it specifies merely scientific and professional attainments, and tells the public, that, if they are otherwise satisfied with the individual, he is perfectly capable of curing diseases; but it does *not* convey municipal rights or privileges, that is to say, the privilege of practising in cities or towns where there are Colleges of Physicians, or other authorized boards, who may have the power of seeing who practise, and how they practise, medicine.

The most important part, however, of the misstatement is yet to come. The body who grant this diploma, viz. the Medical Faculty of the University, never interfere with any one in the practice of any department of the profession; they have never shown any inclination to do so; but what is infinitely more to the point, whatever inclination they might have, they have *not* the power or authority to do so. As their diploma is a mere document of professional attainments and competency, addressed *ubique gentium*, that is, to all the world, and the possession of it conveys no municipal rights or privileges, so the want of it does not prevent from practising, nor have the professors themselves the power of interfering.

The only body to whom this power belongs is the Royal College of Physicians of Edinburgh, and their power does not extend beyond the precincts of Edinburgh; and even here their sway is so gentle and lenient, that no instance of prosecution by them or their agents has occurred since their foundation. It is, indeed, a remarkable contrast between the mild, lenient, and liberal genius of this body and that of other colleges, that graduates of every University, licentiates of the College of Surgeons, and, in short, all sorts of persons, if qualified in any way, are permitted to exercise their calling, and render their services in whatever way may be most useful to the public, and most profitable to themselves. They possess the power of licensing practitioners, and giving testimonials of professional competency, but they have not put it in execution. We are perfectly satisfied, that if any member of the Association of the Apothecaries thought it worth his while to browse the barren soil, and be satisfied with the moderate gains of Scottish practice, neither the College of Physicians nor that of Surgeons would ever interfere.

The diploma of the College of Surgeons of Edinburgh is on a footing still different. That body, like all similar ones, has the power of conferring two sorts of diploma, one a diploma of competency, to its licentiates specifying that they are able to practise surgery and pharmacy,—and the other a diploma both of competency and of municipal and civil privileges to Fellows or Members of the College, and which specifies that they are not only competent to practise surgery, but are guild-brothers of Edinburgh, and thereby entitled to practise in the city without let or hindrance, and possess certain social privileges as members of an incorporated trade. Now, while it is from the latter body only, who correspond to the Fellows of the London College, and who manage all the affairs of the Institution, that surgeons to the different public institutions are selected, this is the only species of exclusive right which the College, as a corporate body, exercises; and their licentiates are allowed to practise, and actually do practise, in all parts of the kingdom, and also in the city itself, without any interference.

The statement of the Worshipful Society, therefore, that the licentiate's diploma of the Royal College of Surgeons does not confer a right to practise in all parts of Scotland, is correct in one sense, but erroneous in another. It confers no right to practise, properly so called; but it is a document of professional competency from an authorized board, stating that the possessor of that diploma is capable of exercising his profession if the public choose to employ him. It confers, in short, no municipal privileges, which the diploma of Fellow or Member does. So far, however, as the actual operation of this diploma and the practice of the college goes, it answers all the purpose of a deed communicating municipal privileges, and especially that most important of all, the right of practising and dispensing medicine within every part of Edinburgh, and over all Scotland. Though the licentiates have no right to interfere in the affairs of the college, and have no share in its property, they are allowed to treat diseases and dispense medicine in all parts of the city, and to do every thing, in short, but act as officers to public institutions. In some instances even this exception has been waived; and in several of the branch dispensaries of Edinburgh mere licentiates are elected medical officers. One privilege only, that of teaching by public lectures, so as to satisfy the public board of the college, has been strictly confined to Fellows. The reason of this is obvious. It would never do to allow all sorts of persons, however qualified, to teach publicly, and to admit the attendance of their lectures as sufficient to constitute an adequate course of instruction. This privilege, therefore, the college has wisely confined to the fellows of its own College, those of the College of Physicians of Edinburgh, those of the Colleges of London and Dublin, and the professors of the Universities of Edinburgh, Glasgow, and Aberdeen. With this exception we are confident the Society will be rather pleased.

In the *third* place, as to the absurd and idle claim alleged to be possessed by the Glasgow Faculty over the four counties of Lanark, Renfrew, Ayr, and Dumbarton, it is entirely a claim of municipal, not professional or academical, privileges. It is somewhat similar to that of the College of Physicians over the circular area of seven miles radius from Pall Mall and Charing Cross; but it differs very materially, we believe, in being much less frequently enforced. We do not pretend to speak for the members of the Medico-Chirurgical Faculty of Glasgow, of whose character we have slender knowledge; but we do not believe that they ever did interfere with any graduate either of

Edinburgh or Glasgow University, or any licentiate from the College of Surgeons of Edinburgh, who was led to practise in either or any of the counties specified. We have known at least several gentlemen who were either medical graduates of Edinburgh, or surgical licentiates, settled as medical practitioners in towns within that district, and who certainly were never disturbed or interrupted in the exercise of their profession.

To meet, however, the objections of the apothecaries on the fair ground, we have no hesitation in saying, that the exclusive privilege of practising in the four counties ought, like all other exclusive privileges, to be abolished; and every individual who has been educated at an authorized school,—who has studied the different elementary sciences a due length of time,—who has undergone the examination of the Universities of Edinburgh or Glasgow for medical graduate,—that of the College of Physicians of Edinburgh for medical licentiate,—or that of the College of Surgeons of London, Edinburgh, or Dublin for surgical licentiate,—and we do not care though we add the certificate of the Apothecaries' Company,—ought to possess the title and privilege of practising any where within the empire, as a general practitioner, and of dispensing such medicines as he sees the cases of his patients require, without interruption from any local boards. It is perfectly clear that this is the method which natural justice and general principles require; and whenever practice is fettered by any other more limited and exclusive restrictions and impediments, the public are decidedly injured, the profession is degraded, and the exercise of the art of healing is denied that free and unrestrained operation which is essential to its own improvement, and its genuineness and efficiency as an article necessary to the well-being of society.

The question of the right of examining those who have already been examined by the Universities of Edinburgh or of Glasgow, or the Royal College of Surgeons of Edinburgh, we have already in a great degree anticipated; and if we have yet much to add, it will be chiefly in reference to the *low standard* which we conceive the Worshipful Society, notwithstanding all their vaunting, adopt.

We repeat the low standard which the Worshipful Society adopt; for that must be admitted to be a low standard, which has the effect of crowding into two winter seasons the whole business of dissection, hospital attendance, and lectures on physiology, pathology, medical and surgical practice, and *materia medica*. It would be absurd and ridiculous in the extreme to compare the course of *sufficient* education prescribed by the Association with that required either by the University of *Edinburgh* or the College of Surgeons in that city; for in no one point are they similar, or can they be compared. Independent of the longer duration of the courses in the latter city, we are not afraid of being accused of any overweening vanity when we assert, that the courses are more complete, more elaborate, and more calculated to benefit the student than those delivered in the schools prescribed by the apothecaries. But we shall take them in this respect on their own exclusive and appropriate grounds,—that of *materia medica* and pharmacy. Do the Worshipful Association, with that becoming modesty for which all their proceedings have been distinguished, pretend to say, that a young man who is ordered by the statute to attend a regular and systematic course of lectures on chemistry, enduring for six months, and the greater part of the time six days in the week, in which he witnesses between 800 and 900 experiments,—a course of practical chemistry of three months duration, in which he performs personally, or assists in performing, all the most important elementary experiments and processes,—a course of lectures on materia medica and pharmacy, enduring for six months, always five days, often six days, in the week,—and practical instructions in pharmacy, lasting for three months or six months, according to circumstances,—has not much better opportunities of acquiring a minute and accurate knowledge of the mode of preparing and administering medicines, than one whose experience has been confined exclusively to the repeated preparation of the same mixtures in the shop or surgery of his master for several years? If they do, their confidence must be infinitely greater than we ever gave them credit for in our most liberal and indulgent moments; and we are only astonished that they do not at once assert that the shop and practice of the apothecary contains every thing useful or necessary in medical practice, and that dissecting-rooms, hospitals, and chemical laboratories, are entirely superfluous and useless.

Every one knows, or at least ought to know, that in the most extensive private businesses, the medicines prepared and dispensed are very much confined to a certain kind and class of remedies; and that a young man who has been diligent, sees in the course of six weeks, or three months at most, the whole of the preparations carried on, or required in the practice of his master. In the laboratories of hospitals and dispensaries, and in other great establishments, however, where the demand is more varied and extensive, his attention is necessarily directed to a much greater number and variety of preparations and medicinal agents, and he naturally in this manner acquires a much more comprehensive knowledge of the articles of the *materia medica*, and of all the forms which they are made to assume in the treatment of disease. This is the method employed in Edinburgh; and we conceive that it is infinitely better calculated to communicate correct and just notions on the subject of *materia medica* and pharmacy, than any other with which we are acquainted, and much more so than that suggested by the Worshipful Society. One measure only is wanted to render it perfect, that is, courses of practical pharmacy, in which the whole of the preparations required in medical or surgical practice may be made in the presence, and by the aid of the students. Many of these are made in the courses of practical chemistry, and of others the student has ample opportunities of witnessing the formation in the laboratories of the hospitals, the dispensaries, or the still more extensive establishments of the druggists, so that to a certain extent this object is accomplished. It would, however, be still better accomplished, if separate courses of pharmacy were taught by the practical chemists, or by other qualified persons,—attendance on which for a certain time might be deemed satisfactory by the public boards.

The importance of this department of medical education, nevertheless, must not be overrated, nor must its study be suffered to usurp an undue proportion of the time and attention of the student, to the exclusion of other branches equally, or rather more necessary. Though it is not a matter of indifference to be acquainted with the preparation, the effects, and the doses of medicines, it is of infinitely more consequence to be capable of determining when they are to be used, and when to be withheld. When 20, nay 100, persons can prepare and prescribe medicine, scarcely one is to be found, in some instances, who can give an exact judgment on the nature of disease, or can tell positively what remedies are to be beneficial. It is, and has been, the great, if not the peculiar merit of the Edinburgh system of education, that the correct knowledge of diseases has occupied the first rank, and that the knowledge of remedies, though not neglected, has been placed subordinate and dependent on this primary department.

The Society, however, are well acquainted with the weak side of the public; and as they know that it makes a stronger impression on the external senses, and on superficial observers, to be capable of administering large quantities of medicine, than to be merely able to tell what is the nature and tendency of a disease, to this point, therefore, they bend their whole force; and insisting on a sufficient education in the palpable materials with which they operate, they naturally receive credit from the public for being deeply interested in the promotion of the medical art, and in providing the public with efficient medical officers. This delusion, for it is nothing else, will, we trust, now be dispelled; and we hope, that though the Worshipful Society have pretended to assert that they alone have insisted on a sufficient knowledge of *materia medica* and pharmacy, these departments of medical knowledge have been both more successfully cultivated and better taught, by the vituperated northern establishments, than by any yet patronised by the Worshipful Association.

But we should be glad to know what entitles the Worshipful Association to claim the right of examining the medical graduates or surgical licentiates of the Edinburgh school on any subject, much less on pharmacy. By what means have they themselves proved that they were competent to such a task? Certainly neither by their general distinction in medical science nor by their skill or celebrity in chemistry or chemical pharmacy. In the latter department, which ought to be their own peculiar province, what a sorry figure they make beside the *pharmaciens* of France and Germany. No analysis of any medicinal agent,—no chemical examination of any of the animal solids or fluids,—no contribution of any kind to improve *materia medica*, to present its active principles in a separate and concentrated shape,—can claim for its author a member of the Worshipful Society. With the exception of Mr Hume of Long Acre, indeed, who, we believe, is a mere chemist and druggist, we know not that any thing of this kind has been done by any one in the rank of a London apothecary. No Robiquet, no Bouillon la Grange; no Ballard; no Lecanu; no Sertuerner; no Buchner, can be found among their ranks. It would require, we conceive, something more than mere assertion and unmixed self-commendation, to satisfy reasonable persons that the members of the Company are the best qualified to possess and exercise this power of examination.

We have no desire, nevertheless, to deprive them of the right of examining all those candidates for professional certificates who have not previously obtained the medical diploma or surgical license of the Edinburgh School. The latter class have already, we contend, undergone a much more sufficient education than that prescribed by the Society, and submitted to a much severer test of qualification; and there is no reason in the world why they should again be subjected to another examination, at least by such a body. Were the scrutiny to obtain a more dignified and responsible rank in the profession, we could understand the reason of such second examination; but, as in all sound logic the minor is included in the major proposition, so we conceive the capacity of knowing the preparation of medicine and the privilege of dispensing it, must be included in the general and comprehensive certificate of professional competency granted by the Faculty of Medicine, or the College of Surgeons.

We have still, however, to advert to a reason which the

Worshipful Company, with their usual knowledge of universities and regard to consistency, assign for giving them the right of examination, and apparently depriving the Edinburgh professors and the Royal College of Surgeons of that so much envied power. They had not the audacity to accuse the College of Surgeons directly and openly of allowing the same members who are teachers and lecturers to be also examiners; for this they probably were aware was in direct opposition to the fact. But after a preliminary remark, that the power of examining persons about to commence practice as apothecaries can in nowise be considered as a monopoly, they add with the slyest and most seemingly simple air in the world;—" inasmuch as the persons who examine the candidates for the certifications of qualification have not the most remote interest in, or connection with, any school of medicine, nor can any teacher in any branch of medical science become a member of the Court of Examiners."

The manifest object of this small comment was to throw some degree of invidious contrast on the Edinburgh College of Surgeons, though, to any one who knows the fact, the very reverse will be the result. Ever since the members of the Royal College of Edinburgh have been in the habit of lecturing and teaching publicly, no member who taught has been at the same time an examinator of the College; no teacher was or could be elected examinator; and the moment that an examinator taught, it would be the signal for electing another examinator in his place. This has been the invariable and uniform *practice* of the Royal College of Surgeons of Edinburgh, without law or statute, from their own feeling of the delicacy of the arrangement. It is now prescribed by positive bye-law of the Royal College. What more do the pharisaical and ostentatious Society of Apothecaries, we beg to ask? As they seem oblivious we will tell them.

They declare that they have no interest in, or connection with, any school of medicine. As little have the College of Surgeons. We have already shown that the members of the Association have nevertheless a most snug and comfortable interest in apprenticeships and apprentice-fees; and these they grasp with the tenacity of attornies. The members of the College of Surgeons of Edinburgh are also entitled to take apprentices, and with them to receive fees, which we have known in some instances to be sufficiently large to excite the cupidity of members of a certain association. The whole of this source of legitimate and copious emolument, however, the members of the Royal College most disinterestedly forego, for no other earthly reason, but because they are satisfied that young men may learn their profession quite as well without the form of apprenticeship as with it, and may spend the hundred guineas perhaps as profitably in feeing hospitals, dissecting-rooms, and chemical laboratories, as in obtaining the honour of being apprentice to the Royal College. When will the members of the Association perpetrate so great a piece of gratuitous generosity and liberality? When will they feel themselves capable of saying,—It is enough. We think the Association would act wisely to say nothing of interests in or connection with schools of medicine. If they have no interest in any school of medicine, they have interest in much better things; and the College of Surgeons of Edinburgh are the very last body against whom they should bring such a charge.

The statement, however, which they could not make against the college in its full and unmixed virulence, they can bring with truth against the professors in the universities; and it is done in such a manner as to glance at the College of Surgeons also. In this extremely absurd accusation, the apothecaries betray their usual knowledge of academical regulations and usages. We beg to ask the Association the simple question, where did they ever hear of a university in which the professors were not at once teachers and examiners. There is not one university in the habitable globe, from Paris and Oxford, to Philadelphia, New York, and Columbia,—from the most ancient to the most recent establishments,—where the teachers do not examine for degrees. It is indeed the very essence and condition of the constitution of a university, that the professors should both teach and grant certificates of the competency of their pupils and *alumni;* and without the signature of the Professors, the diploma of graduate would be neither reputable nor dignified, nor satisfactory as a document of academical education and competency. Such is the case at Oxford, at Cambridge, at Trinity College, Dublin; at Utrecht, at Leyden, at Goettingen, at Tubingen, at Dorpat; at Bologna, Pavia, and at Rome; and, in short, in all the universities we have ever known or heard of. From this rule, however, so general, the universities of Edinburgh and Glasgow are to be excepted, according to the crude and hasty conceptions of the Society of Apothecaries. That the professors are at once teachers and examiners, is part of the general constitution of universities; and that those of Edinburgh and Glasgow discharge this double function, is the necessary effect of their being universities. The arrangement, if bad, cannot be altered without changing the whole constitution and power of the universities. But possibly the apothecaries, in their next attempts at legislation, may give us a specimen of a university of their construction, in which there shall be no obnoxious regulation of this description. Meanwhile, the argument adduced by the Association is a most idle, frivolous, and absurd one, and is in all respects worthy of the sapient body from which it emanates; and if they cannot argue with more accurate knowledge of the constitution of the bodies about which they are reasoning, they will assuredly succeed in convincing the world at large that they are wrong in every respect,—in the statement of facts, and in the formation of inferences.

We do not perceive that they are in the smallest degree more successful in proving, that, if their Act be deprived of its two obnoxious clauses,—its fangs and talons,—incompetent practitioners will be allowed to practise,—the public will become inundated with illegal and unqualified practitioners,—and the provincial medical schools will be ruined.

The Company pretend to say, that they have rejected many of the graduates and members of the Scottish Universities and Colleges,—several within the last twelve months, for incompetency to practise as apothecaries. Of the facts of this assertion we know nothing; and, from the vague and general mode in which the Worshipful Company advance all their statements, we must be excused from placing on it much reliance.

The claims of the Society on the ground of improving medical practice in the country we are perfectly willing to support; and we certainly allow them the merit of improving the attainments of a certain order of practitioners who formerly had a bad education, or no education at all. But we cannot admit that this education is the best which these practitioners can receive; nor do we think that the system of the Company is alone entitled to all this merit. A great and general improvement has taken place in the education and attainments of that class of society who have most intercourse with the general practitioners; who have thereby partly been induced to partake in the general improvement, and who were partly compelled to increase the extent and variety as well as accuracy of their attainments. The improved state of medical knowledge has also exerted its influence in compelling this class of practitioners to obtain a more comprehensive and more complete system of instruction; and their intercourse with enlightened physicians and surgeons has tended to render them conscious of the necessity of more extensive professional attainments.

Their allegations regarding their success in the suppression of unqualified and irregular practitioners are most completely unfounded. Has it not been during the reign of the dynasty of Apothecaries that the mummery and cruelties of St John Long were for years perpetrated with impunity; and was it not from causes totally unconnected with the powers and authority of the

Association that that industrious and successful gentleman was first brought into acquaintance with the Attorney-General. Have Goss and Co. or Lamert ceased to advertise their talents and capabilities, or has Dr Eady ceased to pocket guineas? A few of the obscure and ignoble herd they may have dragged into Court and mulcted to the utmost extent of their slender finances; but all the great and overgrown animals of this class have broken through their toils, and continue to prey as vigorously as ever on the credulous and ignorant part of society. In this respect, therefore, we believe the Apothecaries' Company can be of no real use whatever. In fact, it is absurd to expect quackery or irregularity to be abolished in this way.

Lastly, the Apothecaries' Company are totally mistaken with regard to the effect of repealing the two obnoxious clauses on the provincial schools. Instead of injuring these schools, it will, within certain limits, be beneficial to them. These schools are not supported solely by the apprentices, or those who are destined to practise as apothecaries only, but are attended by all ranks of the profession; and conversely, many apothecaries' apprentices receive no part of their education at these institutions. As connected with provincial hospitals, however, and occasionally taught by intelligent and active lecturers, they are extremely useful in creating and diffusing a spirit of diligence and application, of research and study, of observation and inquiry, which tends very powerfully to the progressive improvement of medicine and surgery, and the efficiency of medical practitioners in the provincial towns. These provincial schools will always be useful as supports and auxiliaries to the more extensive establishments of London and Edinburgh, by initiating the young gentlemen destined for the profession in the elementary principles of medicine and surgery.

In order, however, that the Apothecaries might count a numerous host of friends and supporters, it was requisite to call out that the provincial schools were in jeopardy, to alarm the whole of the gentlemen connected with these institutions, and to tell them that unless they raised their voices, and cried down with monopoly, and down with Edinburgh degrees and diplomas, the whole of their establishments would be utterly extinguished.

Never was a more absurd, groundless, and illiberal clamour raised. Never was a more ill-judged and short-sighted policy recommended. It is exactly the silly and absurd policy that supposes that the success of one party depends on the destruction of all others in the same pursuit or occupation, and that the only way to raise ourselves is to trample all others down. Now, we happen to be so simple as to believe, with no ordinary degree of confidence, that the success of the London schools is perfectly compatible with that of the Edinburgh ones, and that the success of the latter is perfectly compatible with that of the whole of the provincial schools of England. It is a total mistake to imagine, that because one school increases its numbers, those of another must be diminished. The whole of them are increased together, not perhaps at the same rate or to the same extent, but all are increased with the increasing demands and powers of the country. Then it is to be observed, that a desire for obtaining better medical education and more complete instruction is created by the very facilities which are afforded; and many who never thought of having a complete course of education, are induced to obtain it, by finding that the opportunity is placed within their reach.

We would therefore recommend the Worshipful Society, if they wish to receive credit for wishing well to the profession, not to talk in this absurd manner, which shows equal ignorance of the state and wants of society, and of the reciprocal action and reaction of supply and demand.

In the meantime, we must beg the members of the Association, in all friendliness and brotherly affection, not to be offended at the free manner in which we have canvassed their pretensions, and the occasional unceremonious language into which we may have been betrayed. We assure them, that it is not with every one we should take so much trouble, and it is not to all the world that we would feel it incumbent to give so much good advice. We have a sincere desire to raise them to the distinguished eminence to which they aspire, not by the vulgar trick of trampling others down, but by raising themselves. Let them get rid of the Gothic tradesman-like trammels of the apprenticeship, with all its appurtenances of articles and servitude, and every other mark of the bondsman. Let them take pupils, whom, for certain established and proper fees, they may initiate and instruct in all the principles and practices which they can convey, whose studies they may direct, and whose morals and conduct they may regulate, if need be, as they seem particularly desirous to charge themselves with this benevolent task. This let the apothecaries, or surgeon-apothecaries, do, if they please. But they must cease to tell us of the advantages of apprenticeships, and their superiority over education at proper medical schools. They must cease to tell us of the advantages of private practice over a regular attendance on the physician's practice of a public well-regulated hospital, or even the practice of a good dispensary. They must cease to claim the right of examining men who have been examined and certificated by judges perfectly competent to examine and puzzle the Apothecaries'

Court themselves. If they still persist in claiming for themselves the merit of administering the Act impartially and honestly, they should say very little about the conduct of other public bodies, as it will forthwith be suspected, that the whole arises from some invidious dislike at these bodies, and from a desire to supplant them either in the public confidence, or in the collection of pecuniary revenue. To hear them talk of the tribunals of the University or College of Edinburgh having the effect of causing a mischievous inequality of examination, and lowering the standard of attainments, is positively ludicrous, since it must be obvious to every one, that the only body whose standard is really lowest is that of the Worshipful Association.

Finally, until they give up the apprenticeships and the concomitant fees, they must say nothing of *interests* in the matter, nor attempt invidious comparisons between their liberal views and those of the College of Surgeons of Edinburgh. As to the professors of the Universities examining, we must refer them to Sir Henry Halford, and the College of Physicians of London.

These hints, we trust, will be taken as they are given; and we hope the Worshipful Society will save us the trouble of again expostulating with them, and rectifying their mistakes. By their present attempt they have contrived to get themselves and their claims held up to notice all over Europe, in the East Indies, and in the United States,—a distinction to which they were not entitled on the ground of their merits alone. Some of our Continental friends will doubtless wonder that a Society never heard of, unless in some absurd contest like the present, should set forth such claims, and require so much reasoning and remonstrance to place them on their just ground; and assuredly the Society are a complete anomaly in medical economy; since on the Continent no such privileges as the Society claim would be allowed, nor would any legislature listen to the authority to which they lay claim over the body of medical graduates and surgical licentiates. We trust that our legislators will be equally firm and equally impartial, and not allow the statements of the Apothecaries' Company to carry more weight, or make a deeper impression, than they ought in justice to do. The medical graduates and surgical licentiates desire nothing but permission to exercise their profession, in a free and unrestrained manner, without interruption, after they have finished the prescribed course of study. They have no desire to interfere with the Apothecaries, or to control their practice; but they wish that these gentlemen may not have the power of interfering with them. In short, all that the medical graduates and licentiates wish, is exemption from an oppressive thraldom, and the effects of an overbearing exclusive monopoly.

ART. X.—*A Dictionary of Practical Medicine, comprising General Pathology, the Nature and Treatment of Diseases, Morbid Structures, and the Disorders especially incidental to Climates, to the Sex, and to the different Epochs of Life.* By JAMES COPLAND, M. D., &c. &c. Part I. London, 1832.

FROM the specimen here given, this promises to be a very excellent work. In the part now published, Dr Copland has shown infinite research and learning, no ordinary degree of taste and judgment, and very great skill in the arrangement and concentration of his materials.

Though the title-page is long and circumstantial, it performs what is done by very few title-pages,—gives a very accurate view of what the work really is. The present part, which contains 336 pages, extends from *Abdomen* to *Climacteric Decay*, and contains at least forty-five separate articles, all treated with great skill, learning, and ability. Dr Copland, indeed, has here published a series of essays which may be justly said to be unrivalled for extent and accuracy of information, methodic arrangement, and the condensed form in which they are composed.

It is impossible, within the limits of a mere notice like the present, to enter into any details, and indeed it would be absurd to attempt to review them or examine minutely the mode in which the subjects are treated. But we have perused with some attention most of the leading and important articles, and from the manner in which these are written, we scruple not to say, that if Dr Copland proceeds as he has commenced, he will produce a work which is yet unrivalled in the English language. The articles *Apoplexy*, *Arteries*, *Asthma*, *Blood*, *Brain*, *Bronchi*, *Cellular Tissue*, and *Cholera*, are particularly deserving attention.

By some it may be regarded as unlucky that this work appears at the same time with the Cyclopædia of Practical Medicine. This idea we cannot adopt. There is doubtless room for both; and the honourable competition will do good to both parties, and good to the public. We dislike comparisons, and shall therefore institute none; but we may remark, that the medical literature of England is now in a fair way of possessing two works of reference of the most complete and comprehensive character, both possessing peculiar advantages, and to either of which the student or practitioner may safely trust for information on difficult and doubtful points.

We trust that Dr Copland will continue as he has begun; and that he will realize the expectations to which he has already given rise.

PART III.

MEDICAL INTELLIGENCE.

Apoplectic Death from effusion of Blood from Aneurism of the Basilar Artery. By MR EGERTON A. JENNINGS. (*Transactions of the Provincial Medical and Surgical Association*, Vol. i. 1833, p. 270.)—It may be remembered, that Mr Hodgson, in his work on Aneurism, pointed out the fact, that extravasation of the blood within the cavity of the cranium generally arises, as elsewhere, from a previous morbid condition of the arteries of the brain; and that M. Bouillaud, in a paper published in the 9th vol. of the Mem. Med. Society of Emulation in 1826, undertook to show that apoplexy depends on disease of the arteries of the brain, which become steatomatous, opaque, brittle, inelastic, and incapable of containing their contents, or favouring their transmission, and thereby give way at the weakest points.

We, on a former occasion, canvassed the merits of this doctrine, and considered the facts on which it rests. It is so far well founded, that it may be justly said that copious extravasation of blood within the cranium never takes place spontaneously—that is, without external violence, unless after previous disease of one or more of the cerebral arteries. The following is a very beautiful instance of this species of lesion.

John Beard, aged 54, a stout healthy man, had served seventeen years in the army, which he had left about twelve months. He had enjoyed good health until within the last few months, during which time he had suffered frequently from headachs, which were sometimes very violent, but never so severe as to prevent him from performing the ordinary duties of a labourer. When actively employed he suffered least; but on Sundays, and at other times when unoccupied, his spirits were extremely depressed, and he complained more of the pain in the head. He frequently experienced great weariness of the limbs, which occasionally *went to sleep*.

On the 15th December 1831, after passing a more comfortable day than for some time previous, he took his supper early and retired to rest, expressing great pleasure at finding himself better than usual. In about an hour after he went to bed, his wife was alarmed by hearing him make a peculiar noise in breathing. On going to him, he informed her that he awoke suddenly, supposing that he had been violently struck at the back of the neck. He could scarcely breath, and was confident that he was going to die. He almost immediately became insensible. Mr Jennings saw him about twelve o'clock, and was struck with the peculiar character of the respiration, which consisted of alternate violent spasmodic inspirations and slight groans, but without stertor. Inspiration had the character of a violent sob; expiration was attended with a long-continued groan. All the limbs were completely powerless, and void of motion; when lifted from the bed, they fell as though dead, and appeared quite insensible when pinched or pricked. Common sensation and motion appeared, however, to exist in the face; for, on tickling the cheek with a feather, the muscles contracted, and on introducing fluids into the mouth, the lips and cheeks moved, but he could not swallow. The pupils were not unnaturally dilated, and contracted on the application of light. When spoken to very loudly, and requested to put out his tongue, he made an effort to do so, but did not get it beyond his lips. He gave no other indication of consciousness. He was in a profuse perspiration. As he lay, the head was evidently drawn backwards, arching the neck considerably, and when the neck was straightened, it directly returned into the same position when left to itself. The pulse was 80, small, and rather hard.

Mr Jennings immediately took fifty ounces of blood from the arm, which had the evident effect of relieving him considerably. He opened his eyes, spoke, said the back of his head and neck were in pain, breathed more calmly, put out his tongue, and moved his limbs. The pulse rose to 90, and was soft. In half an hour after the bleeding, he endeavoured to get out of bed; but an effort to vomit coming on, he fell backwards insensible, and again entirely lost the power of moving his limbs. The breathing returned to its former state, and gradually became more difficult, with occasional long intervals between each respiration. He soon became quite unconscious of any sound, however loud; and respiration became slower and more laborious, until about seven o'clock, when he died.

Inspection of the body seven hours after death was performed.—The brain and spinal chord were removed together from the body, by first sawing away the arches of the vertebræ, and then opening the cranium. A large quantity of serous fluid was effused at the basis of the cranium, and into the spinal canal, in its whole length. A large coagulum of blood was found covering the *medulla oblongata*, and just extending to the *tuber annulare*, but not at all covering it. On carefully opening this clot, a small aneurism of the basilar artery was discovered. This aneurism, which was about the size of a pea, had given way, and been the source from which the hemorrhage had taken place. The clot involved at their origins the sixth, seventh, eighth, and ninth, pair of nerves, and, of course, must have produced great pressure upon them, and also upon the *medulla oblongata*. A slight thin coagulum extended round the spinal chord; in some parts, presented more intense red patches. There were also, in one or two places, small clots on the surface of the cerebellum.

In the dissection of the brain, the whole of its substance was found remarkably injected. In many places, the medullary matter presented exactly the appearance of a white surface sprinkled over with red sand; or, as M. Lallemand has named it, the *injection sablée*. No other morbid appearance was discovered.

This case, which shows the effects of the effusion of blood on the bulb of the spinal chord, proves also that the rapidity with which apoplectic symptoms prove fatal, depends very much on the part of the brain in which the vessels are injected, or the blood or serum is effused. It also well explains the kind and degree of the symptoms.

The Nakra or Nasa, an affection of the Schneiderian Membrane in Bengal. By Mr TWINING. (*Clinical Illustrations of Diseases of India*, 1833.)—The natives of this part of India are subject to a singular febrile affection, which, though transient, and seldom or never fatal, is of a very severe and distressing description: it takes place suddenly, and the patient is for a time completely disabled. This affection is named by the Bengalees *Nakra* or *Nasa*; which literally means, the nose disease. It usually commences with a sensation of pain and distension within the nose, attended by extreme pain in the back of the neck, a hot forehead, and excessive weariness and pain in the loins, and in all the joints. In a few hours the pains are much augmented in the frontal and superior maxillary sinuses, and in the nose; but the headach and pains in the back and limbs are not at that time moderated. The eyes soon become red, a strong light is irksome, and much prostration of strength takes place. The thirst is usually very distressing; and the sufferings of the patient in the majority of cases so severe, that he is soon obliged to relinquish his usual occupations, and lie down. The pulse is in general rapid, but seldom very full or hard. I have observed it as frequent as 128, in a slight-made, elderly Hindoo, within three hours after the first sensation of uneasiness had commenced in the back of the neck and interior of the nose. The respiration is hurried but not laborious, and there is much anxiety, especially when the patient stands in the erect posture; if we look within the nostrils, the Schneiderian membrane will be observed much swollen and inflamed. In a few rare instances, the complaint begins with a bilious vomiting. A burning heat of all parts of the body continues for two or three days, and seldom terminates by a critical perspiration.

The ordinary duration of this disease is from three to five days; it attacks both Hindoos and Mahommedans; and slight-made persons do not seem more exempt from it than those of a robust habit: women suffer from the disease more rarely than men, and it is very seldom observed in children below ten years of age, or in men much above forty-five. Some Asiatics are never attacked during their whole lives, while others have had this fever severely once a fortnight for three or four months, and then were free from the disease for many years: more commonly those who have had the disease twice, are seldom exempt from its returns annually for several years; but these attacks do not observe any regular periods. The Nakra occurs at all seasons of the year: I believe it to be more common at the latter end of the hot weather, and during the rains, than at any other time. The disease is said to be induced by irregular habits of living, such as attending to business and going about in the sun, at hours which infringe on the usual periods of bathing, and of taking food and repose; sitting up late at night in earnest conversation on subjects inducing mental anxiety, is also supposed occasionally to bring on the disease. The Nakra is said to depend on a disordered state of the bile, and an impaired condition of the digestive organs, induced by these means, but it often occurs without any of these exciting causes, and the natives have no distinct notion of its pathology; nor do I know that it has been the subject of very attentive observation by European physicians.

Medicine is very seldom employed in this disease; the sufferers usually wait patiently for its spontaneous cessation; for they assert that its course is not shortened, and the constitution not assisted in overcoming the disease, by any medicines that have been tried. They have a custom of drawing some blood from the nose, which is done by thrusting pieces of rough-edged sharp grass up the nostrils, or by puncturing the schneiderian membrane with a sort of awl or needle. The quantity of blood drawn by these means seldom exceeds an ounce, and in general it is much less, but it affords remarkable and prompt relief, and I believe it is resorted to by the majority of the poorer people when they have this disease: they have an idea, that after once obtaining relief in this way, the pain of any future attack will be much more severe if they do not employ the same means. I have never known the Nakra prove fatal, but am informed that severe attacks are liable occasionally to be followed by the fever denominated *Biggar*, which is a disease remarkable for the intensity and danger of the cerebral symptoms, and frequently proves fatal. The Nakra never terminates in suppuration, or ulceration, or in any chronic disease resembling Ozæna.

I have never met with this disease in Europeans; though some of its characters very closely resemble the fever which was epidemic in Calcutta in June, July, and August, 1824, and affected almost every native as well as European in the place: but on questioning natives subject to Nakra, and who had suffered the epidemic of 1824, I have always been told that the diseases are very different as far as relates to the feelings of the patient, and that the suffering under an attack of Nakra is much more severe. The only mention of any similar disease I have met with, is that given by Dr

Benjamin Rush, at the end of his work on the yellow fever.* From the name of the disease, indicating that it is characterized by severe pain, and from the mode of treatment employed, the complaint alluded to by Dr Rush may be supposed to resemble the Nakra: he says, "There is a disease in North Carolina, known among the common people by the name of the *pleurisy in the head.* It occurs in the winter after a sickly autumn, and seems to be an evanescent symptom of a bilious remitting fever. The cure of it has been attempted by bleeding in the common way, but generally without success. It has, however, yielded to this remedy in another form, that is, to the discharge of a few ounces of blood obtained by thrusting a piece of quill up the nose." A person unacquainted with this disease, would be liable on first seeing it, to suppose a native in some danger, when the complaint required only a few days rest, and little or no medical treatment.—*Twining on Diseases of Bengal*, p. 700–705.

Case of very extensive Osteo-Sarcoma of the Lower Jaw, in which the greater part of that bone was removed, and one ramus disarticulated with perfect success and eventual recovery. By William Hetling, Esq. Surgeon to the Bristol Infirmary. (*Transactions of the Provincial Medical and Surgical Association.* London, 1833, p. 277.)—Removal of portions or the whole of the lower-jaw for osteo-sarcomatous and other malignant tumours, possess peculiar interest, from the extent and importance of parts concerned, and the difficulty of extirpating them with perfect success. Mr Liston of this city lately removed the whole lower jaw in a case of this kind; and recovery would have certainly taken place, had not an attack of the erysipelatous inflammation, then epidemic, supervened, and proved fatal. Mr Syme also cut out the *symphysis* of the lower jaw in a woman; but the patient died from the inflammation spreading to the throat. The following case is extremely interesting, from the successful manner in which it terminated, though one *ramus* was disarticulated.

Margaret Hunt, aged 23, of a scrofulous habit, sallow complexion, and with a very feeble and limited intellect, was admitted into the Bristol Infirmary 27th January 1831, with a large and prominent tumour of the left side of the face, extending over both jaws, and appearing to fill up the cavity of the mouth, elevating and pushing before it the integuments of the cheek. The resistance which the cheek offered repressed and flattened the surface of the tumour, and in consequence of this resistance, a portion of its lobulated structure was forced towards, and partly protruded at, the angle of the mouth between the lips, so as to distort the mouth, and depress very much its left angle. The integuments also both of the nose and eye were disfigured from the same cause, forming, together, a very striking and fearful deformity of the face. The tumour extended from the upper to the lower jaw, to the latter of which it adhered so firmly as to render it completely immoveable, so that the patient could not masticate, and could scarcely articulate, being only enabled to answer questions put to her by indistinctly mumbling yes or no. In this state she was compelled to live upon fluids, and even these were with difficulty swallowed, deglutition being much impeded by the pressure of the tumour upon the internal part of the mouth.

Her friends stated that she had been always of a weakly constitution, and that the swelling commenced when she was between eleven and twelve years of age, in consequence of a chill taken from sleeping in a room with the window broken; and that on the following morning the left side of the face and the eye were swollen to a great degree, which in the course of some days subsided; that soon after a hard swelling appeared about the middle of the cheek, since which time it had been gradually increasing to its present size; that it had given her pain; that several of the teeth on the affected side had occasionally dropt out, and that those which remained were loose and displaced, accompanied with a continued dribbling of a fetid discharge from the mouth. They also replied to the inquiries of Mr Hetling, that she never had had a tooth extracted, not having been subject either to toothache or gum-boils; that latterly there had been frequent and copious bleedings from the mouth; and that no other remedy had ever been applied than a bread and water poultice, and then only when there was more pain than usual,—and that it generally afforded relief.

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* An Account of the Bilious Remittent Yellow Fever of 1793, in Philadelphia, 12mo, Edinburgh, 1796.

Upon accurately examining the internal part of the mouth with the finger, it was ascertained that the tumour originated in the superior maxillary bone, which corroborated the patient's statement; and that in its progress it had gradually extended backward into the palatine portion of the mouth, and been pressed forwards and downwards upon the lower jaw by the action of the cheek, where, by its long-continued growth and increasing pressure, it had produced extensive absorption of that bone. The alveolar border and processes of both jaws were nearly all removed on that side of the face; in the upper jaw not a tooth was left; in the lower only a few remained, loose and buried in the medullary matter of the tumour. One rather unusual, and, with a view to an operation, favourable circumstance was, that the tumour prevented the closing of the mouth, in consequence of its insinuating itself between, and adhering to both jaws, so as to render them fixed, to a certain degree, asunder. This circumstance afforded the opportunity of exploring, by the finger, the inside of the mouth, by which means it was ascertained that no adhesive, ulcerative, or fungating process had taken place between the surface of the tumour and the cheek, although they were in close contact, and, as may be supposed, firmly pressed together. The fact of finding the cheek free, healthy, and unadhering, so as to allow the finger to pass between it and the tumour, and over its surface, quite up to the articulation, was an unexpected feature amidst such a mass of disease, and contributed to encourage the prospect of the projected operation. The elastic properties of the cheek had caused it gradually to yield, and accommodate itself to the growth of the tumour, in a manner similar to that which the parietes of the abdomen so remarkably exhibit in cases of dropsy. The glands of the neck were found free from disease.

Externally, the tumour gave the sensation of firmness, from the tension of the cheek over it; but internally it felt soft and yielding, about the consistence of brain. The shape of the tumour may be conceived from the above description; with respect to its size, it was about equal to a large orange.

" From this statement, (says Mr H.) it is evident the tumour was of too extensive and serious a nature to be trifled with, and that no benefit could be derived from any remedy, except by such means as should destroy its texture, and at the same time prevent a renewal of its growth. The knife and actual cautery appeared to be the only resources advisable; the knife to remove the tumour, and the cautery to destroy that part of the bone in which it might be found imbedded. I was sufficiently aware of the tendency of the morbid action I had to contend with, and of its disposition to spread into surrounding parts, whatever might be their nature or tissue, and from experience, that operations undertaken for this purpose, in many instances had been followed by relapses. At the same time, I had the consolation of knowing that tumours, considered of the most malignant, threatening, and hopeless aspect, in the opinion of some very eminent surgeons, had, as a forlorn hope, been removed with complete success; an instance of which has lately been given by Mr Lawrence, in his very interesting paper, published in the 17th vol. of the Medico-Chirurgical Transactions. So difficult and uncertain, sometimes, are both the diagnosis and prognosis of this class of diseases. I reflected also, that, in the opinion of the first authorities, there were some features that might, at least, be considered not unfavourable in this case, namely, that the fungating process, which so frequently supervenes in this denomination of tumour, had not taken place; that constitutional derangement had not made so much progress as might have been expected, considering the extent and long duration of the disease; and above all, that the neighbouring glands, and the integuments immediately over the tumour, remained perfectly healthy and uncontaminated. Under this impression, I laid the above view of the case before my colleagues.

In consultation, it was determined to endeavour to remove the tumour from its base and attachments, and to destroy, if practicable, the surface of the bone from which it originated.

A few days previously to the operation, I again accurately examined the parts, and removed the few remaining teeth out of my way. No hemorrhage followed. The teeth were sound.

On deliberate consideration, I determined to avoid the preliminary step, or rather, I ought to say, important operation, which many eminent surgeons have previously adopted in cases less severe, that of first passing a ligature round either the common or external carotid trunk, and tying it finally before the intended operation, or leaving it loose under the artery, to act in imitation of the tourniquet, in case of necessity. I decided upon trusting to the able assistance I was sure to obtain from my colleagues, upon securing branches as they were divided, and employing pressure or the actual cautery; at the same time, I prepared myself to secure the common trunk, if circumstances should ultimately require it.

Further reasons for declining this superadded operation are mentioned in the practical observations with which this paper is terminated.

Feb. 16.—The patient was laid horizontally on the table, on the right side, the head moderately elevated on a firm pillow, so as to place the cheek in the most favourable position for *the operation.* Two fingers were introduced at the angle of the mouth, between the tumour and the cheek, in the direction of the articulation; the integuments were then freely slit up between them to the lobe of the ear; another incision was then carried from the infra-orbitary ridge, across the centre of the first incision, down to the angle of the lower jaw. It was here necessary to tie some branches of the facial artery, which bled rather freely. The flaps of the crucial incision were then reflected, which fully exposed the external and irregular lobulated surface of the tumour, and afforded also the opportunity of tracing its base and attachments. The base of the tumour was found to occupy the palatine and maxillary portion of the upper jaw; and in its extensive growth its head had been forced down and attached to the ridge of the lower jaw, nearly as far as the *symphysis,* extending along the whole of the alveolar border, nearly in a horizontal line from the mental *foramen* to the condyloid process, the whole of which portion was discovered to be either absorbed, or in a state of caries, from the long-continued pressure of the tumour. In fact, the tumour had so worked its way across the lower jaw, both inwards and outwards, that it was found buried in its substance, and, consequently, absorption of its body had been going on for some time on both sides of the bone. The substance of the tumour was next separated by the knife and fingers from its base and adhesions. This occupied a considerable time, in consequence of its various sinuations, as it had penetrated in every direction where it could find access. When this was effected, an extensive irregular surface of bone was found in a state of caries, extending in the upper jaw, from the *pharynx* across the palate to the malar bone. Not the least vestige of the thin walls of the *antrum* remained. Fortunately the floor of the orbit was left uninjured. With the assistance of Liston's bone-cutter, small saws, &c. every portion of diseased bone was taken away that could be safely removed, and the general surface scraped as carefully as possible with the knife, it being intended finally to apply the actual cautery over the whole plane of the diseased bone. Having accomplished this tedious and difficult part of the operation, ample room was found for amputating the lower jaw at the articulation ; caries having extended, as before-stated, from near the *symphysis*, along the whole of the upper margin to the joint. This extensive line of bone was then sawed off, except the condyloid process, which was afterwards easily disarticulated, and removed with Liston's bone-cutter, having first divided the fore-part of its capsule, and also the temporal muscle from the coronoid process. This important, and generally intricate part of the operation, was facilitated by the previous removal of all the teeth and alveolar processes.

During the operation no alarming hemorrhage occurred ; and, after the branches of the facial artery had been secured, but little interruption was experienced from loss of blood.

The operation was necessarily long and tedious, occupying about three quarters of an hour, part of which time was spent in allowing the patient to rest and change her position, and in giving some cordial to relieve weariness, rather than an actual state of fainting. In consequence of the exhausted state of the patient by the lapse of time, I was urged by those around me, from the best motives, to put aside the intention of using the actual cautery. I regret that there should have appeared a necessity for this omission, as there would otherwise have been the satisfaction of reflecting, that every means had been exhausted in trying to eradicate the disease ; for it is too well known, that, if not entirely destroyed, this description of tumour repullulates with greater facility, in consequence of the stimulus which the mechanical injury of the knife applies. The surface of the wound was cleaned, and the flaps of the cheek were replaced, and brought into neat apposition by three sutures, over which adhesive straps were placed, and retained with a light bandage. No unpleasant symptoms afterwards occurred.

On the fourth day, when the dressings were removed, the external incision, it was found, had completely united, with very little deformity or falling in of the cheek. The patient was able to swallow, speak, and breathe easily, and in the course of a fortnight, the dressings having been discontinued, she walked about the ward, and was evidently convalescent. By this time she began to eat soft substances, and, in the course of a month, masticated almost as well as usual with the other side of the mouth, from which there was now no discharge. After this, I kept her in the house for about three weeks longer, both for security and observation, when both herself and friends became impatient for her return home, which was assented to, and she was dismissed, April 5th, quite restored to a healthy appearance, exactly seven weeks having elapsed from the day of the operation. Strict injunctions were given to the patient as to the future care of herself, with directions to return to the house should there appear at any time a renewal of the disease, or any uneasiness of the mouth or cheek.

Anatomical character of the tumour after removal.—On examination, its lobulated shape had been mostly destroyed, in consequence of considerable portions having been necessarily torn apart by the finger during the operation. Its substance throughout possessed the common homogeneous structure of medullary matter, being composed of irregular masses, inclosed and separated from each other, more or less completely, by thin membranous *septa*, bearing, in colour and consistence, a near resemblance to brain. On cutting it into slices, a few blood-vessels were divided, from the orifices of which oozed small portions of blood. In fact, it possessed all those anatomical appearances usually characterizing medullary *sarcoma*, with which every practical surgeon is familiar."

Instance of Hydatiform Cyst in the Anterior Chamber of the Eye of a Young Girl.—On Thursday the 14th March we had an opportunity of seeing a singular form of morbid production in the anterior chamber of the human eye. A young girl, about eight, resident at New Lanark, had been affected many months previous with attacks of inflammation in the left eye, of different degrees of severity, and recurring more or less frequently, —from about the month of August 1832 to the close of January 1833. About this time, when the *conjunctiva* and *cornea* were still covered with numerous red vessels and the latter membrane was slightly opaque, a small globular body could be recognized in the anterior chamber. The girl had been attended hitherto by Mr Logan of New Lanark.

About the end of February, Mr Meikle of this city, who had occasion to be in Lanark, saw the girl, and with that disinterested zeal for affording relief, and promoting the interests of professional knowledge, he instantly brought the child to Edinburgh, to get means adopted for restoring her vision, which was already considerably impaired. For several weeks Mr Meikle gave the profession in Edinburgh every opportunity of inspecting the eye of this child.

On the 14th, when we saw her, there was visible a body of a shape nearly spherical, about two lines in diameter, transparent apparently, and consisting of a thin membrane containing a clear fluid. The only deviation from the spherical shape was at one point, which was always the most dependent, and which in different positions and at different times gave the body a pyriform shape, not unlike that of a common air-balloon. The body was not attached to any part of the anterior chamber, but floated about freely; and occasionally the dependent pointed process seemed to vary in length and prominence, being at one time prominent and acuminated, and another obtuse and retracted, so as not to make much deviation from the spherical shape.

The circumstance of the motion of this part, with its transparency and globular shape, made the body be regarded by most of those who saw it as a specimen of hydatid of the eye; and some referred it to the *cysticercus*, some to the acephalocyst.

We have great hesitation in offering any opinion, as we conceive it was impossible to determine the point unless the body was examined when removed from the eye. One circumstance decidedly against the idea of its being a hydatid is, that it was not attached to any part of the eye, but moved freely about. Hydatids are always attached so long as they are in life. It is possible that it might have been a product of inflammation.

The body was removed from the anterior chamber by dividing the cornea, by Dr J. A. Robertson. Unluckily it was burst on removal, or soon after. But the child did well.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Remarks on the Theory and Treatment of Scarlet Fever; with brief notices of the Disease, as it prevailed epidemically at Bridlington in 1831.* By HUMPHRY SANDWITH, Esq. Surgeon.

THE father of English medicine, Sydenham, has philosophized on the scarlet fever less in unison with the data of a widely extended observation, than with the *a priori* deduction of an exploded pathology. One would conclude, from the little attention which Sydenham has bestowed on the subject of scarlet fever, that the epidemics which he witnessed were of so mild a character as scarcely to require the interposition of medicine. His plan of treatment accordingly, corresponding with his estimate of the simplicity of the disease, excluded bleeding and every other active agency. "Simplici hâc et naturali plane methodo, hoc morbi *nomen* (vix enim altius adsurgit) sine molestiâ aut periculo quovis facillime abigitur."* Everything was forbidden which he conceived likely to interfere with the hypothetical process of a *despumation* of the blood. His final conclusion is that, when the disease proves mortal, it is by the "nimiâ medici diligentiâ." So faithful an observer, so original a thinker, and one so decisive in action, could never thus have trifled with some of the epidemic forms of scarlatina, which have appeared in latter times.

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* Thomæ Sydenham, M. D. Opera Universa, Ed. 1726, p. 260.

The very converse of Sydenham's conclusion applies to a malignant epidemic of this kind, which still (December 1831) lingers in this neighbourhood. Having originated at an early period of the summer, a few miles north of Bridlington, where it proved very destructive, it progressively invaded the town, the quay, and the adjacent villages with nearly equal characteristic virulence and fatality. The severity of the disease will be illustrated in the sequel. But a few circumstances in proof of it may here be mentioned in anticipation. Adults, when exposed to the contagious miasm, are affected usually by sore throat only, without the rash. But besides numerous cases of this kind, at least ten perfect, some of them severe examples of the disease, fell under my own observation. Heberden relates, as a very unusual occurrence, that " he had seen one *man* in it, who was four-and-thirty." And Sir Gilbert Blane has remarked, that he never saw a person turned of forty affected by it. Of two of my patients, both *men*, one was just forty and the other was fifty-nine. In the former, notwithstanding the repeated application of leeches, to the number of sixty, the throat sloughed. The latter case was not equally severe, although dropsy followed the attack. In both the rash was partial, but succeeded by desquamation of the cuticle.

Infants at the breast also did not enjoy, as usual, an invariable exemption. In Dr Mason Good's description of the worst form of *Rosalia paristhmitica*, * he states " death to ensue shortly after the seventh day; sometimes on the sixth." But the Bridlington epidemic proved fatal in many instances on the third, and even as early as the second day. A few died suffocated and apoplectic within thirty-six hours from the first moment of attack, in defiance of every attempt to save them. These cases, in their cerebral and tracheal symptoms, and the rapidity of their destructive career, meet with a close parallel in the cases of death " from drinking boiling water from the spout of a tea-kettle," described by Dr Marshall Hall and Mr Stanley in the 12th volume of the Medico-Chirurgical Transactions. At the commencement of the epidemic, I have been assured by a most competetent observer,† that in several instances death occurred in twelve hours, without any attempt at reaction to obviate the collapse, which supervened on the cold stage. Again, the disease usually presents itself in its simple and anginose varieties, not only with strongly-marked distinctive characters, but also with a large proportion of cases of the milder description. But in the present instance comparatively few cases occurred in childhood, which were not combined with intense sore-throat, or inflammation of a more important part. Lastly, the first stage of the disease was in general brief, reaction and inflammation rapidly succeeding, and hastening the subsequent more dangerous phenomena.

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* Good's Study of Medicine, Vol. iii. p. 18.

† Mr Hagyard, of Humanity.

The occurrence of so severe an example of scarlet fever is agreeable to the analogy of all other epidemic maladies, as to their ever-varying range of mortality. *Rubeola*, for example, proved so fatal in London in 1807, as to hold blood-letting and every other remedy at defiance.* And in the island of Tobago, in 1818–19, " five hundred children fell victims to *pertussis*."† The writer who has recorded this astounding fact adds :—" The extreme fatality of the disease on this occasion has given me as much uneasiness as surprise, as it is one considered by most writers as being milder in warm than in cold countries." So far, indeed, from the severe epidemic scarlatina, which I am about to describe, being unique in its kind, it might be paralleled without any laborious research into the annals of medicine. To pass by the less accurate records of the sixteenth and seventeeth centuries, during which various severe epidemic forms of the malady are manifestly described, as invading by turn every country in Europe, Dr Willan mentions the irruption of a malignant scarlet fever at Paris in 1743, which proved almost universally fatal, " many patients dying of the sore-throat in nine hours from the commencement of the fever." Dr Fothergill alludes to an epidemic scarlet fever at Bromley, near Bow in Middlesex, in the winter of 1746, of so fatal a character, and one " that seemed to yield to no remedies or applications, that several of the inhabitants were greatly alarmed by it; some losing the greater part of their children, after a few days' indisposition."‡ Equally fatal epidemics were observed and recorded by Dr Lettsom, in 1793; § by Dr Sims, in 1798; || and by Dr Robert Jackson at the commencement of the present century. The cases of scarlet fever, in the private practice of Sir Gilbert Blane, from 1795 to 1806, had no minor degree of mortality, the deaths being ten in thirty-nine cases, or one in four.¶ In Dr Bateman's Reports on the Diseases of London, from 1804 to 1816, we find one exception, and but one, to as mild a form

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* Bateman's Reports on the Diseases of London, p. 90.

† Quarterly Journal of Foreign Med. and Surg. Vol. ii. p. 107.

‡ Fothergill's Works, Ed. 1781, p. 199.

§ Memoirs of the Medical Society, Vol. iv. p. 280.

|| Ibid. Vol. v. p. 430.

¶ Medico-Chirurgical Transactions, Vol. iv. p. 139.

of the disease probably as that noticed by Sydenham. Traced through the reports of each successive year, it seldom even attained the severity which belonged to it in the autumn of 1808, when only *one in thirty six* died.[*] But the real exception to such uninterrupted freedom from danger occurs in Report xlv. And though the degree of mortality, which is not defined, fell very short probably of that we wish to parallel, it proves at least the main point, that the fatality varies in scarlet fever as certainly as in other epidemic fevers, dysentery, or spasmodic cholera. "The scarlet fever," he observes, "was generally accompanied by a severe affection of the throat, which, in many cases, continued to harass the patient after the usual term of the fever had elapsed, and in several children appeared to be the principal cause of *the fatality* of the disease. The simple rash, which yields readily to the cool treatment with little medicine, was seldom seen during this epidemic; and the period when cold washing seemed to be essentially remedial was soon over." Dr Hamilton tells us, that "*the mortality was great*" in the epidemic scarlatina of Edinburgh in 1804.[†] "Dr Lehman has published, in the twenty-second volume of Rust's Magazine, a memoir, in which he observes, that an epidemic scarlatina prevailed at Torgau, in 1825, of so violent a character, that one in eight of those afflicted with it died, and that thirty patients, all of tender age, fell victims to it."[‡] Proofs of the occasional malignity of the disease might easily be multiplied; but these may suffice to correct any false impression, derived from the not less true but opposite accounts of its fatality, by Sydenham, Macgregor,[§] Dr Carbutt,[||] Mr Alcock, and others.

The truth seems to be that, as Dr Heberden has stated, "this distemper is sometimes so slight as to require no remedies, and sometimes so violent as to admit of no relief;" or, in the more laconic language of Darwin, it differs in all degrees "from a flea-bite to the plague." For this description applies equally to the cases of any single epidemic, and to different epidemics as compared with each other. The authority of Dr Cullen might be cited in illustration of the same view of the subject, if we assume *the identity* of his *Scarlatina anginosa* and *Cynanche maligna*, when prevailing epidemically. In the former, the bad cases were "not above one or two in a hundred;" while in the latter, "the proportion was reversed, and these mild cases were not one-fifth of the whole, while the rest were of the putrid and malignant kind." And of the epidemic *Cynanche maligna*, which he has described, and which he states he had seen prevailing two or three times, he emphatically says, " most of the instances terminate fatally."* We are in like manner told by Dr Binns, that " the children at Ackworth in 1803 had in general the disease much more severely than those who had it there about eight years before."†

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[*] Reports on the Diseases of London, p. 108.

[†] Hamilton on Purgatives, p. 62.

[‡] Dewees's Practice of Physic, Vol. i. p. 225.

[§] Vide Macgregor's Report of the principal natural Diseases amongst the Children of the Royal Military Asylum at Chelsea. The mortality was 6 in 131, or about 1 in 20. Med. Chir. Trans. Vol. v. p. 441.

[||] North of England Med. and Surg. Journ. Vol. i. p. 27.

The fact of this diversity in the character of epidemics is important, not merely as an object of curiosity in the annals of medicine, but as influencing treatment. It has been too much overlooked, however, by compilers of systems of medicine, which, embracing the ordinary forms of the disease only, leave the student unprepared to grapple with its worst varieties; and Sydenham's measures obviously bear no proportion to the demands of a severe epidemic. To what extent, indeed, a treatment, founded on true pathology, and corresponding in activity with the severity of any given epidemic, would avail to lessen the ratio of its mortality, I am not prepared to say. My own experience favours the conclusion, that, with every allowance for the original malignity of the disease, its actual fatality is considerably under the control of art; for in proportion to the vigour of my remedies was my success. Truth, indeed, demands some qualification of this remark; and observation seems to warrant the assertion, that the disease under certain circumstances almost inevitably destroys life. Dr Currie has recorded, as the result of his experience, that a form of the disease, which he thinks the epithet *purpurata* would designate better than *scarlatina*, and to which the cold affusion is inapplicable, is so irresistibly fatal, that " all remedies have been equally unsuccessful."‡ And Dr Sims, in summing up the inefficacy of every plan adopted in the London epidemic *Scarlatina anginosa* of 1798, candidly avows, " that from experience he can venture to recommend nothing, and that whatever means are used must be prompt and powerful."§

With all the aids of enlightened pathology, we have still to grapple with a combination of circumstances, which appears to be almost insuperable in the present state of medical science. That combination is an overpowering miasm, acting in quick succession, with excessive inflammation or congestion of one or more vital organs or tissues, and concurring with a weakly, strumous, or otherwise diseased organization; for a predisposition to organic lesion often exists in parts enfeebled and left irritable by former acute or chronic affections. The difficulties contemplated in such a case are greatly augmented by the well-known intractable nature of exanthematous inflammation of the internal structures. The danger to be encountered is nearly equal, whether the collapse in such cases be with or without reaction. Mr Alcock, indeed, tells us, that "the mortality of this disease has been considerably overrated."* But though he speaks from observation, and though in his hands prompt and energetic treatment would render an epidemic of ordinary severity harmless; yet, when he tells us, that "in the greater number of cases it requires but little medical treatment, when the general management is not defective," there is too much room to conclude, that his observation, like those of Sydenham and De Gorter, have been drawn from phenomena within too limited a range of observation. "When measles or scarlatina appear epidemically, it is highly important," observes Martinet, "to study the character of the epidemic, and modify our plan of treatment according to the general influence of remedies over it, and the combinations of symptoms in each case."† Such ought to be the practical result of *studying the character of epidemics*, the ascertained malignity of which should animate, not paralyze, our exertions; and even the want of success, while it may in part be extenuated by considerations regarding the intensity of the disease, and the imperfections of our art, should lead us to attribute our failures rather to a want on our part of corresponding knowledge of the subject, talent for observation, or decision in the use of appropriate remedies. Dr Hamilton's account of the scarlet fever in Heriot's Hospital, in the autumn of 1804, furnishes us with an example of rare observation of the characters of a very peculiar epidemic, leading to a judicious and tolerably exact adaptation of the most successful remedies.

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* Cullen's First Lines of the Practice of Physic, Vol. ii. p. 191.

† Medical and Physical Journal, Vol. xv. p. 492.

‡ Currie's Medical Reports, &c. Vol. ii. p. 44.

§ Memoirs of the Medical Society, Vol. v. p. 430.

The epidemic scarlet fever, which it is my task to describe, exhibited the following varieties:—

1. The majority of cases manifested a high degree of fever, with more or less of delirium, and an intense inflammation of the fauces. With considerable irregularity in the developement of animal heat, however, in this, as in the severe epidemic described by Dr Bateman, the period when cold-washing promised to be remedial was soon over; but tepid ablutions were applicable throughout. Whether the brain was more or less implicated, the throat almost invariably ulcerated or sloughed, especially when local depletion was inadequately employed or trusted to alone. In neglected cases of this kind, the extension

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* Medical Intelligencer, 1820, p 201.

† Martinet's Manuel of Therapeutics, Trans. by Dr Morton, p. 294.

of the inflammation from the mucous membrane of the fauces to the excretory duct of the parotid and submaxillary glands, exasperated doubtless by the sympathetic irritation dependant on the rapid sloughing of the throat, produced excessive tumefaction of those glands and the surrounding cellular tissue, with consequent mechanical obstruction to the return of blood from the brain. A low fever with delirium, sometimes slowly, sometimes rapidly, terminated their sufferings. In the latter stages, from the extension of the inflammation to the *larynx*, this variety was prone to lapse into the fourth or that of bronchial inflammation. All were not attacked with equal severity, the symptoms being mild in a few instances.

2. In some of the cases gastric irritation, from the extension of the inflammation of the fauces down the œsophagus to the stomach, greatly augmented the danger, by adding to the extent and importance of the inflamed surface of mucous membranes, interrupting the rash, rendering the operation of purgatives more precarious, and exasperating the irritation of the nervous system. Occasionally the whole alimentary canal seemed to participate in the affection of its upper portions. The fatal epidemic of 1793, from Dr Lettsom's description of it, obviously corresponded closely with this variety. It differed at the same time from those described by Drs Fothergill and Hamilton, because decided affections of the abdominal portions of the alimentary canal were comparatively rare in this epidemic.

3. In several cases, active delirium or coma set in at once, or within a few days, after a delusively mild appearance of the disease. In the former, the excitement ran extravagantly high, the patient singing and raving by turns, until signs of oppression supervened on those of exalted sensibility. In the latter there was involuntary evacution of the feces within a few hours of the attack. The eyes were ferrety in both, but muddier in the latter, in which also the skin was cooler, and the rash duskier. In one example, which partook of the characters of both these forms of cerebral disorder, there was extreme coldness of the extremities, with blueness of the fingers and lips, and petechiæ mingled with the eruption. Life was extinguished in these cases within two, three, or at the most four days, after the developement of the cerebral symptoms. The throat was sometimes severely inflamed; at other times the transition of the inflammation to the arachnoid membrane was almost complete. *Subsultus tendinum* occasionally appeared very early.

4. In a still greater number of cases than those of the third variety, a marked bronchial inflammation, with consequent sensorial oppression, sometimes extinguished life with equal rapidity; in other instances, in which it came on later by an exten-

sion of the *Cynanche tonsillaris* to the trachea, death ensued in a week or ten days. In this form of the disease, the rash was invariably interrupted, faded, assumed a copperish hue, or wholly disappeared. The pulse was quick and feeble; the skin for the most part cool; the tongue dry and glazed; and the whole system rapidly laid prostrate.

I also witnessed some clear examples of the disease, which arranged themselves under none of these varieties, but corresponded with the irregular congestive form described by Dr Armstrong. The most striking features were:—the cold stage, with repetitions of it so intense as to resemble approaching collapse,—occasional paroxysms of febrile heat, observing no periodical exacerbations,—excessive irritation of the nervous systems,—the rash faintly emerging and disappearing, but never establishing itself,—black and offensive stools,—the throat but slightly inflamed,—the pulse varying most remarkably in frequency,—and the tongue furred, with red papillæ, but always moist.

The following were among the most prominent sequelæ of the disease. General dropsy occurred in a few instances from exposure to cold during convalescence, but proved manageable. In one instance, not resulting from cold, but obviously dependant on chronic visceral inflammation, hydrothorax supervened and proved fatal. In one case, a married female, there was inflammation and abscess of the breast. Abscess in the neck, equally annoying to the patient and the surgeon, was a frequent occurrence. But this inconvenience seldom, if ever, arose after general bleeding. Severe epistaxis was controlled in one case with difficulty, and the child rallied. Dr Fothergill, though a humoral pathologist, had the sagacity to guess the true cause of these severe hemorrhages, which point, and not obscurely, to a better pathology. "It has happened," says he, "in this distemper, that hemorrhage from the nose and mouth have suddenly carried off the patient. I have heard of the like accident from bleeding at the ear; but these fatal discharges most commonly happen after the patient has been ill several days; and *it seems more probable that they proceed from the separation of a slough from the branch of an artery*, rather than from the fulness of the vessels, or an effort of nature to relieve herself by a salutary crisis. This I find was also Heredia's opinion, who considers a discharge of blood, either from the mouth or nose, as a sign of the utmost danger."* Hemorrhage from the intestines attacked another child after the fever had declined, and its removal was followed by purulent opthalmia. This patient had not been visited professionally in the earlier stages, and it eventually sunk under reiterated irritation. Chronic dysentery appeared in one solitary case after the subsidence of fever. In another ulceration and sloughing of the throat, as well as of the leech-bites externally, from pure constitutional and strumous debility, continued long after the fever had vanished, as late indeed as the fourth week; when an extension of the ulcerative process to the larynx destroyed life by suffocation. The child had been moderately depleted by leeches only; and ammonia, quinine, and wine, were employed in aid of its enfeebled powers.

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* Fothergill's Works, p. 213.

The fatality of the disease, though not an absolute measure, is yet a powerful illustration of its severity. In the treatment of the first variety, my success was on the whole encouraging, though it would probably have been greater by a freer use of the lancet. But on the third and fourth varieties, the fatality was painfully great, though eventually lessened, at least in the third species, by general bleeding in aid of other measures. Five of the fatal cases might fairly be considered beyond the reach of art, when I first saw them, from gross neglect. Something is also to be laid to the charge of ignorance among the humbler classes, who often fail to second the efforts of the surgeon by not faithfully administering medicine, employing the syringe, or ventilating the sick-room; to say nothing of the injuriously wretched accommodations too often met with in the cottages of the poor; to which may be added, the infrequency of our visits to distant villages, and late application for relief. As in epidemic cholera too, the weakest and worst constitutions are almost invariably seized by the malady, and swell the amount of its mortality. The young and delicate are among its first victims; and, as is well known, not unfrequently puerperal women. Hereditary diseases also, of the class Cachexiæ, tend greatly to aggravate the operation of this as of other morbid poisons. With the legitimate deduction of the five cases above alluded to, the mortality in the whole number was in the proportion of thirteen in eighty-one, or about one in six.

Our view of the disease has been hitherto general, embracing an account of a few of its peculiarities, and a description of its varieties; including also some mention of its sequelæ, and a statement of its fatality. The recital of a few cases will now enable our readers to obtain a more minute and thorough insight into its real nature, which will be clearly traced in the three following examples occurring in my own family. And having had ample opportunity* narrowly to watch its varied aspects, and promptly to meet its most urgent indications, a full description of the phenomena which I observed will furnish additional data for the observations on the theory and treatment of scarlet fever, which will be found at the close.

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* I was just convalescent from an attack of severe bronchial and pulmonary inflammation, but unable to leave home.

Miss S. a vigorous girl, æt. 12, was attacked with sore throat, October 23d, in the morning. The fauces had a deep exanthematous blush, with the usual signs of incipient fever. During the first three days the fever advanced with increasing impetuosity, the pulse rising to 140, tense, and resisting. The head and throat continued intensely painful, and the latter more vividly inflamed, in defiance of the application of thirty-eight leeches to the external fauces and temples, aided by free purgation with calomel and tartarized infusion of senna. Delirium of an active kind, producing a disposition to get out of bed, talk incessantly, and sometimes sing, set in on the fourth night, and continued uninterruptedly about forty-eight hours. It was preceded by oppression at the præcordia, loud moanings, ineffectual retchings, and distressing jactitation. Various forms of medicine failed to restrain the sickness. Great pain being complained of in the course of the œsophagus, and the tongue putting on a glazed appearance towards its point, a few leeches were applied opposite to the seat of pain, with evident relief of that symptom. Sickness still continuing, leeches were again applied to the epigastrium, followed by free calomel purgation. These measures gave relief to that symptom also. The pulse now dropped to 120, the tongue became moist, the countenance lost its anxious expression, and tranquillity, with a disposition to sleep, supplanted the moaning, tossing, and delirious excitement. Actual debility having resulted from such continued irritation, and the measures adopted for its removal, I commenced on the sixth day with carbonate of ammonia, in doses of five grains every fourth hour, and substituted rhubarb and *sal polychrest* for more drastic purgatives. The syringe now dislodged immense quantities of coagulable lymph, intermingled with sloughs. Sleep became more profound under the cordial plan of treatment, but without any signs of coma; and an easy position on the side, with the limbs half bent, delightfully relieved the picture, when she lay supine and immoveable on her back. She slept almost uninterruptedly about thirty-six hours, during which it was difficult to give either food or medicine. The consequence was an alarming increase of debility and emaciation, which, as sleep declined, was gradually repaired by nourishing food, and alternate doses of quinine and ammonia. The fauces also, from neglect of the syringe, showed a greater abrasion of the surface, and more surrounding inflammation, in addition to the frightful ravages first discoverable on the separation of the sloughs. By the persevering use of detergent gargles, and painting the ulcers, by a camel's hair brush, with a solution of nitrate of silver, [*] aided by such means as improved the general health, these symptoms rapidly declined.

This severe case, which was a specimen of the first variety, blended with the second, now went on satisfactorily, with one or two unimportant sequelæ. For some time there was considerable pain in each act of deglutition at the lower part of the sternum, as if slight ulceration remained in the œsophagus. The food was made as demulcent as possible, and the sternum covered with a white pitch plaster. The throat, also, continued to improve; but several glands in the neck, on both sides, became inflamed and swollen, and the irritation was twice renewed on one side with suppuration. I should have before mentioned a slight enlargement of the sublingual and parotid glands at an early period of the disease, as well as recorded the appearance of the rash, which came out freely on the trunk, but was obviously retarded in its developement on the extremities by the extension of the inflammation of the mucous membrane of the fauces to that of the œsophagus and stomach. The little patient herself on becoming rational, spontaneously remarked to me, "Papa, I believe I owe my life to the leeches applied to the stomach. No one but myself can imagine the benefit which I immediately received."

My second son, G. S.[†] æt. 8, fell into the disease, October 26. The attack was insidiously mild. But the throat was inflamed, and I took the precaution to leech the external fauces the first two days, in addition to the Hamiltonian method of purgation. On the morning of the 28th, the throat looked worse, the night had been more restless, and the pulse was quicker and sharper. Ten more leeches were applied. Insidiously mild in its appearance, there was from the beginning paleness of the face and lips, a partial and transitory cutaneous efflorescence, and a dejection of mind, which indicative of some smothered disease, excited apprehension of the future. At four o'clock P. M. after awaking from a snoring sleep, in a moment he became furiously mad (*delirium ferox.*) His shrieks and yells filled the house. He leapt from the bed, bit, spat, grinned, and struggled so violently as to require the coercion of three or four persons. Every attempt to soothe him was but throwing oil on the flames. The fever was intense, the pulse 150, and vibratory in the extreme. These symptoms, coupled with the total disappearance of the rash, which had partially appeared on the trunk, showed that the inflammation was transferred to the membranes of the brain. I instantly opened a vein in the arm, and abstracted ten ounces of blood. The approach of syncope calmed the delirium, and the tongue became moist. This was followed up by calomel, of which he took fifteen grains, in three doses, in the course of eighteen hours, aided by jalap and scammony. But such was the torpor of the bowels, that little impression could be made on them by these means. The delirious paroxysm returned on the afternoon of the 29th, in spite of the application of twelve leeches to the temples in the morning, but was not equally violent. Under the direction of Dr Thorp of Leeds, * who happily called on me at noon, on his return from Scarbro', I again met the active delirium by another bleeding to the extent of seven ounces. A vein being opened in each arm, a quicker impression was made at a less expence of the vital fluid. Six leeches also were applied to the epigastrium, as he winced under pressure. Tartarized infusion of senna, occasionally quickened by smaller doses of calomel and jalap, was continued, but with unsatisfactory results. On the morning of the 30th, there was a more palpable remission of the symptoms; the tongue cleaner; the mind less excited, though not steadily rational; and less grinding of the teeth, which had been throughout a prominent symptom. Towards evening the delirious paroxysm returned, but in a mitigated form; and an injection being administered, it passed off with little violence. The fever and torpid bowels continued. On the 31st, he had slept better, and was more rational on awaking; pulse 120, and soft. The throat, of the pain in which he invariably complained with each exacerbation of the fever, was better; and there was some improvement in the evacuations. A febricula came on a few times each succeeding evening.

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[*] Argenti Nitr. gr. x. Aquæ distill. ℥i. ft. lotio.

[†] My oldest son, H. S., æt. 9, suffered at the same time from the first variety of the disease, but in a comparatively mild and open form. Ten leeches applied twice to the fauces, with free purging, moderated the local inflammation and general fever, and he was convalescent in a week.

Steady attention to the state of the bowels, and mild nourishment, constituted the remainder of the treatment of this example of the third variety of the disease, until convalescence approached, which was promoted by quinine, and the cautious allowance of a more generous diet. He was convalescent within the fortnight. The inflamed throat secreted a few flakes of coagulable lymph, but never sloughed. The blood he lost by the lancet and leeches (allowing three drachms to each leech) amounted to thirty-two ounces. I should have mentioned, that the blood was exquisitely sizy, the crassamentum being perfectly spherical, and the buffy coat deeply cupped, and contracted to the size of half a crown. No extraordinary debility ensued.

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* With my best acknowledgments to Dr Thorp, I beg also to record my sense of the kind and valuable services rendered me during the whole of these afflictions by Drs Mayo and Oxley of the Quay, and my brother from Beverley.

My pupil, Mr R. F., æt. 18, became decidedly ill, October 30, after complaining a few days of slight sore throat, with catarrhal symptoms. He had imprudently washed his head. With acute fever the tonsils were slightly inflamed; but there was deep-seated inflammation in the pharynx, corresponding with Dr Cullen's fourth species of cynanche. "*Cynanche (pharyngea) cum rubore in imis præsertim faucibus.*" Calomel and James's powder, in the dose of five grains each, with senna mixture, produced vomiting, with but little action on the bowels. October 31st, hot skin; pulse 120, and sharp; intense thirst; continued vomiting; rash struggling to emerge on the neck and breast. One general bleeding to ℔. ß. producing a slight tendency to syncope, greatly lessened the pain of the throat, and moderated the sickness for some hours. Six grains of calomel, with tartarized infusion of senna, operated copiously; but the vomiting again returned. November 1. The posterior fauces being still deeply inflamed, twenty leeches were applied externally; and as nausea and vomiting continued, and the rash had nearly disappeared, fourteen leeches were ordered to the epigastrium, P. M. Such excessive sickness, accompanied with extreme depression of strength and spirits, indicated the serious invasion of an organ essential to life. In fact, I dreaded the approach of *gastritis*, from the following assemblage of phenomena. A dry and brownish tongue; the lips parched and chopped, the cuticle of which peeled off in thick flakes; the pulse depressed and sharp; and the bowels torpid, and their excretions most unsatisfactory; but as delirium kept off, and purgatives were beginning to act, I trusted to perseverance in their employment. Under their increasing influence nausea diminished; and as the stomach began to bear liquids better, I aided the calomel by jalap, which at length produced bilious evacuations. November 3d. By persisting in the Hamiltonian plan, the tongue had improved, the sore throat vanished, sleep had returned, the bowels acted correctly, there was less thirst, appetite returning, the pulse was 106, and soft, there was a genial glow on the skin, and the rash had reappeared freely on the chest and extremities. The citrate of ammonia, in an effervescing state, with camphor mixture, was ordered. My patient was convalescent within ten days. This was a well-marked case of the second variety.

The remarks of Sydenham, when not transgressing the range of the phenomena of simple scarlet fever, contain the germ of a sound observant philosophy. The skin is an organ which discharges certain vicarious offices both in health and disease; and it is unsafe to interfere with its functions, except when they cease to be salutary. Happily the indications of such a devious course are cognizable in all the exanthemata. The doctrine of Sydenham, not rudely to interrupt the order of nature, has been recognized by the highest authorities down to our own times. We may cite two or three of the moderns in illustration. " Some little deference," says Dr James Johnson, " we conceive is to be paid to nature in this specific operation; and her work should not be rashly interfered with, until she appears to be going wrong." * The same conclusion results from the reasonings of Dr Robert Jackson, who has shown, that in the eruptive diseases of specific contagion, by no violent methods can the attempt to restore the natural harmony of the system be made " without eminent risk, the movements being so rooted, that they must be permitted to go on to the appointed period and usual form of termination, *unless where they absolutely threaten danger to life*," or, as he elsewhere expresses it, " unless in evident symptoms of inflammation." And Martinet cautions us, when our dread even of a deviation in the processes of nature is justly excited, not rashly to interrupt her proceedings. " We must not, therefore," says he, " whenever the internal mucous membranes exhibit signs of irritation, hastily employ powerful antiphlogistic remedies, but bear in mind, that *its natural tendency is to diminish, as eruption appears on the skin*."† We are furnished with an instructive analogy in measles, when, as frequently happens, relief of the pectoral symptoms follows the appearance of the eruption. Steadily as this principle should be kept in view, we ought to be aware, at the same time, of the occasional departures from general rules, in which nature herself indulges without injury. We sometimes observe in a family, where the disease has pursued its usual course, that one or two have had inflammation of the mucous membrane of the fauces and smart fever, but with no rash, in spite of the employment of the warm bath, and without any other internal affection as an equivalent. Hence Heberden, in speaking of the eruption in simple scarlet fever, observes :— " The redness of the skin affords no certain mark of the degree or event of the disorder: I have seen it become much more florid without any relief to the patient, and grow pale without any ill consequence." ‡

The superiority of the practice of the moderns over that of their predecessors consists in the discovery, that we may safely *assist* without interrupting the processes of nature, and in having ascertained, with tolerable precision, how far, in such *auxiliary* efforts, we may venture to go. The knowledge of these principles created a new æra in medical science. Such was Sydenham's horror of all interference, that he forbade even the use of glysters; and "upon procuring a few stools with manna," Dr Fothergill gravely tells us, "the redness of the skin has disappeared, and the flux to the throat has been surprisingly increased."* Thus an inference is derived from the purgative plan, which further observation assigns to the *defect*, not to the excess of the remedy! From the authorities quoted by Dr Hamilton,† as favourable to the use of purgative medicines in this disease, it is evident, that observation was gradually removing those hypothetical terrors, which, before his time, had greatly circumscribed their employment. But it was Hamilton himself who achieved the complete triumph over the prejudices of past ages; and the bold, but successful experiments of Currie had just added another trophy to the rapid advances of medical science.

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* Medico-Chir. Review, Dec. 1820.

† Manual of Therapeutics, p. 293.

‡ Heberden's Commentaries, p. 19.

By purgatives, the cold or tepid affusion, and in certain states of the system the warm bath, free ventilation, and the whole antiphlogistic regimen, much may be done in the earlier stages of scarlet fever, to favour the natural and safe developement of the disease. Most of the epidemics described by Dr Bateman did well under what he calls, "the simple treatment of early purgatives of calomel, (with emetics in some instances) diaphoretics, and cold-washing." The late Dr Armstrong has gone a step farther in attempting to co-operate with nature, his object being to alleviate the symptoms of the first stage of oppression, and thus, as far as possible, annihilate in embryo the rudiments of future mischief. His plan is, to employ "a brisk purgative first,—a mild emetic next,—and the tepid bath last." In addition to which, in cases of palpable congestion of an important vital organ, after using the warm bath strongly impregnated with salt, he has recourse to a *moderate* local or general bleeding.‡ Martinet likewise observes, (p. 292) that, "when the eruption is endeavouring to establish itself, pediluvia, impregnated with mustard, are very useful in promoting its developement." The views of pathology embraced in these recommendations, take for granted the great liability of nature to fail in accomplishing her purposes, or to depart from a safe and salutary course. And Dr Armstrong has deserved well of the profession by the rare talent for observation, which he has shown in detecting and describing many of the hitherto undefined eccentricities of nature's most untoward movements. The views of this physician, much as they have been objected to, are countenanced by Martinet in the following passage. "But these exanthemata do not always pass through their various stages with the same regularity: thus sometimes, at the commencement of the patient's illness, a complication of sympathetic phenomena, and those of a very serious nature, throw the utmost obscurity over even the nature of the disease, and exceedingly embarrass the practitioner in treating it. Of this description are cerebral congestions, agitation, perpetual restlessness, great uneasiness, sense of suffocation, oppressive breathing, languor, headach, prostration of strength, collapse, with or without reaction, &c."* But if there be one individual who more than another has thrown a clear and steady light on the pathology of scarlet fever, it is Mr Alcock. While he, too, recognizes the principle, that "the disease is not to be treated by remedies, which too powerfully depress the powers of the constitution," his pathological inquiries into the state of the mucous membranes in all the exanthemata, have led him to the important conclusion, "that in every *severe* case of measles, small-pox, and scarlet fever, the mucous membranes are implicated;"† in other words, involved in inflammation, "the proof of which, in many cases, has been rendered evident on dissection." Mr Alcock's discoveries would have been anticipated, had the earlier observers completed by the scalpel what mere observation of symptoms left imperfect in their pathology. Thus Dr Fordyce, in his description of "the erysipelatous sore throat, or sore throat attended with ulcers," ascertained, by dint of observation, the principal seat of the disease, and the extensive hold which it takes of the internal mucous membranes. His language is remarkable. "At the same time, if the disease be violent, the mucous membrane of the other parts of the body is affected, and sickness, vomiting, and sometimes purging, come on at the beginning; these generally leave the patient in about twenty-four hours; but if they continue, they add very much to the danger: the eyes are also red and watery, the membrane of the nostrils is inflamed, a watery stimulating fluid runs from it, and sometimes hemorrhages ensue, which are often fatal, if they arise the third or fourth day, or afterwards: there are also instances of the *vagina's* being inflamed and exulcerated, and of the *menstrua* coming on, although it be not their usual period. After a day or two, the skin of the extremities and of the throat externally is often affected with erysipelatous inflammation, and little eruptions take place, relieving the sickness, purging, and other symptoms, arising from the mucous membrane of the intestines being diseased." * His description of the erysipelatous sore throat corresponds so closely with the symptoms of the anginose scarlet fever, as to render their *identity* at least probable. His hypothetical distinction between *irritation* and *inflammation*, the former of which he considered the essence of the disease, and as naturally associated with debility, led him to discard "evacuations, especially by bleeding and purging, as not only useless, but detrimental." To his important conclusion, that the mucous membranes are implicated in the severe forms of scarlet fever, Mr Alcock has subjoined another, which adds weight to the former, that "when the inflammation of a part of the mucous membrane is severe, it is more apt to run a rapid course, when attendant on the exanthemata, than under other circumstances." In confirmation of this highly important opinion, we may quote additional authorities. Thus, Dr Bateman remarks, that "the most unyielding modifications of pneumonia have occurred as the sequelæ of measles, or have supervened on hooping-cough; under both of which circumstances the ordinary remedies appear to be less efficacious than in the more simple forms of pneumonic disease." A similar remark holds good of the transition of other eruptive diseases of the skin to the internal mucous membranes. "Bronchitis," says Dr Hastings, "arising from cutaneous diseases, is more dangerous than that proceeding from cold." †

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* Fothergill's Works, p. 215.

† Hamilton on Purgatives, p. 72.

‡ Armstrong on Scarlet Fever, Measles, &c. p. 34.

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* Martinet's Manual, p. 292.

† Medical Intelligencer, 1820, p. 196.

We have remarked that our predecessors, though they occasionally approached the confines of true pathology, fell short of it from their limited knowledge of morbid anatomy. "In one that was opened after death," says Dr Sims, "the *aspera arteria* was found lined with this matter (coagulable lymph,) like what is said of the croup. From this, and the disappearance of the ulcers in the fauces, and other symptoms already mentioned, in many fatal cases, I am led to suppose, that the visible disease in the throat was by much the least part of it, and that in bad cases it spread down to the lungs and stomach, and even perhaps through the alimentary canal." ‡

These conjectures the rapid advances of this department of medical science have amply confirmed. The limited knowledge of morbid anatomy alluded to, may therefore be pleaded in excuse of the vague theories of past ages. For, until the present century, but little can be gleaned on the subject from the writers on this disease. Withering mentions a solitary dissection of Sennertus, who found great ravages in the lungs and the liver. But so late as 1802, Dr Pascalis of Philadelphia remarks, that "dissection has as yet afforded but little elucidation as to the nature of this disease." * Since that time, however, the morbid anatomy of scarlet fever has been sedulously cultivated; and of such inquiries this is the result, that the mucous surfaces seem to be those parts of the system on which the morbid poison operates in scarlatina, except when, from its more violent invasion of the nervous system, the larger viscera suffer through direct sympathy. In his enumeration of the morbid appearances, Dr Armstrong speaks of "the brain, the liver, the stomach, the intestines, and the lungs, as the parts most often inflamed,"† not excepting "the fauces, and mucous membrane of the trachea."‡ Mr Alcock, also, emphatically states, that "neither has he met with any case which terminated fatally, where, on careful examination, these membranes were found to be free from disease."§ Equally express is the testimony of Martinet, who asserts, that "the danger of these exanthemata consists in their being accompanied with inflammation of some of the organs of the three splanchnic cavities; this complication may indeed be regarded as *essential to scarlatina* and *rubeola*."||

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* Fordyce's Elements of the Practice of Physic, p. 309.

† Hastings' Treatise on Inflammation of the Mucous Membrane of the Lungs, p. 207, 228, 230, 243.

‡ Memoirs of Med. Society, Vol. i. p. 437.

As the testimony of independent observers having no theory to promote, we subjoin two dissections in scarlatina, highly illustrative of the results of inflammation in the gastro-pulmonary tissues. "In a child who died on the sixth day of this distemper, and was opened, the velum pendulum was putrid; the tonsils were outwardly blackish, and livid within; the uvula was covered with a thick mucus resembling a membrane; the epiglottis was sound, and so was the œsophagus; but that mucous covering descended down the trachea quite to its division, in the upper part of which it appeared like a membrane, in the lower part it was more like mucus."¶ The following is the *post mortem* examination of a young woman æt. 20. "The abdominal viscera were all found perfectly healthy; the lungs were gorged with blood, and some serum had been deposited in the cavity of the thorax. The lining membrane of the larynx was of a dark-brown colour; it looked rather as if it were lined with a piece of wetted brown

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* Med. and Phys. Journal, Vol. xx. p. 123.

† Armstrong on Scarlet Fever, &c. p. 14.

‡ Ibid. p. 21.

§ Medical Intelligencer, 1820, p. 156.

|| Martinet's Manual p. 291.

¶ Heberden's Commentaries, p. 27.

paper than with a mucous membrane. The same appearance was seen for a short distance upon the membrane of the œsophagus. The membrane of the trachea was in the highest possible state of inflammation, which inflammation extended into the bronchiæ as far as they could be traced. The membrane of the trachea was of a deep brick-dust red, approaching to brown. This redness gradually assumed a brighter hue, as it extended itself upon the bronchiæ. The brain was not examined."* Our readers may think us needlessly prolix on a point now so well understood. But the important practical questions which the consideration of *post mortem* evidence involves, must plead our apology.

While the mildest form of scarlet fever hardly requires any medicines, and in its simpler anginose variety is easily controllable by purgatives and the cold or tepid affusions, aided occasionally by leeches to the throat, yet when complicated with intense degrees of inflammation of the mucous membranes or other viscera, it is only by a resolute interference with nature in her deviations from a salutary course, that health can be restored. Such interference, therefore, however bold and decisive, resolves itself equally with the milder methods of relief, into an agency *auxiliary to the vis medicatrix naturæ.* This assertion, we are aware, admits of dispute, and will be called in question by those who consider blood-letting as essentially a debilitating agent, and therefore inapplicable to the complicated phenomena presented in this disorder. The opinion, however, which refers the train of putrid symptoms, which in the worst cases rapidly develope themselves, solely to some invisible debilitating miasm that acts independently of inflammation or congestion of the vital organs, we would, with Dr Armstrong, submit at once to the test of *post mortem* investigation. And if any inference can legitimately be drawn from that source of evidence, we assert it to be, that such symptoms are so constantly found associated with derangements in the structure or condition of vital organs, as to authorize us in concluding such derangements to be essential to their production.

Great obscurity hangs over the pathology of this disease, simply from not discriminating between the *primary* and *secondary* events in the order of causation. While the disturbances in the circulation are attributable to a debilitating miasm, these very effects of a primary become a secondary cause in relation to many of the phenomena, as, for example, those of putridity and dropsy. Dr Good has attributed the latter to the exhausting miasm of *Rosalia ;* and for the same reason "forbids any evacuation that adds so immediately to the direct debility as venesection."* But sounder pathology would have looked to the state of the circulation induced by that miasm, as one which the lancet avails to remedy, and one, which if not so remedied, tends to produce the very disease incorrectly ascribed to an invisible cause. In accordance with these views, Dr Dewees remarks, "We are inclined to believe that this affection (dropsy) arises from the accompanying inflammation not having been properly subdued by early depleting remedies."† Blood-letting, therefore, general and local, singly or combined, and adapted in amount to the circumstances of each individual case, is the grand agent on which we chiefly rely in the management of the more dangerous varieties. This powerful remedy, however, requires at once discrimination, promptitude, and discretion. Its inadequate employment, and its abuse, have equally militated against its pretensions. Blood-letting, also, like purgatives, has been proscribed in this disease chiefly through the prejudices engendered by false theories. The despumation of Sydenham, the irritation of Heberden, the debility of Withering, and the putridity of others, equally forbade the lancet. Fothergill, also, imputes the most fatal results both to purgatives and venesection, from their debilitating effects on the system.

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* Bedingfield's Compendium of Medical Practice, p. 284.

The error was venial at a time, when the invigorating virtues of cool air and the antiphlogistic regimen were unknown, and when artificial debility was induced by external management, which rendered the operation of lowering remedies positively unsafe. But the moderns are inexcusable, and most of all Dr Currie, who branded the use of blood-letting and purgatives as "a fatal practice,"‡ in adhering to dogmas, which the vast revolution effected in medical science by observation, experiment, and morbid anatomy, has wholly subverted. We shall therefore pass by the oracular prohibitions of the lancet by a host of modern worthies. The responses of the ancient oracles themselves having ceased to command respect, little homage is due to their mere echoes. And yet on such slender authority, it would seem, as that of the majority of our compilers of systems of medicine, a recent anonymous author presumes to teach, that "though the use of the lancet may now be considered as forbidden, yet the occasional use of local bleeding is admissible in certain rare cases."§ In reply to this and other sweeping denunciations of the depletory practice in scarlatina, we rejoin, in the pertinent language of Dr Heightz of Hanover, that "the mortality of the disease has run parallel to the increasing influence of the Brunonian system." Medicine being no longer an occult science, our reliance must be on those who appeal to experiments on the living, and dissections of the dead.

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* Good's Study of Medicine, Vol. iii. p. 23, 25.
† Dewees's Practice of Physic, p. 223.
‡ Currie's Reports, Vol. ii. p. 50.
§ "Caution to the Public, or Hints upon the Nature of Scarlet Fever," p. 67.

Dr Cullen, who holds an intermediate place between the older theorists and modern experimentalists, states, that "When there is a pretty high degree of fever, with a full pulse, and a considerable swelling of the tonsils, bleeding is very proper, especially in adults, and it has been frequently practised with advantage."[*] The recommendation, however, thus authorized by *observation*, is, from the influence of *theoretic* considerations in the writer's mind, too much qualified, when he subjoins, "but it should at least not be large, and ought not to be repeated." It is remarkable, that in his plan of treating *cynanche maligna*, "the septic tendency of which is chiefly to be kept in view," a similar conflict between *theory* and *observation* characterizes his remarks. "The debility with which it is attended," he observes, "renders all evacuations by bleeding and purging improper, except in a few instances where the debility is less, and the inflammatory symptoms more considerable."[†] Physicians on the Continent, Dr Willan tells us, recommend bleeding both from the arm and jugular vein. Dr Morton adopted the same practice in London. The methods of Dr Armstrong, whose decisive use of the lancet in the open forms of excitement is exchanged for its more cautious employment in the insidious congestive varieties of the disease, are too familiarly known to be recapitulated. Dr Plenciz, as quoted by Dr Good, "is a strenuous advocate for the use of the lancet." Dewees,[‡] Alcock,[§] Bedingfield,[||] Dawson,[¶] Martinet, and others, recommend an equally energetic practice, and all are agreed in the very great importance of topical depletion. "Leeches," says Martinet, "may be applied behind the ears, on the outside of the throat below the clavicles, or at the epigastrium, according as the symptoms are those of arachnitis, angina, bronchitis, or gastritis. Should there be great general reaction, which cannot be explained by the condition of any one organ in particular, the abstraction of a moderate quantity of blood from the arm may be employed with much benefit." Such is Martinet's advice on the very onset; before those topical inflammations have burst forth, which his principles inculcate, are only to be extinguished by still more vigorous measures. After all, the use of bleeding in scarlet fever, which, as Drs Willan and Good have shown, came by almost general consent during the last century to be gradually disused, or employed with a paralyzing caution, is but a revival of the practice of an earlier age. Ætius, as quoted by Dr Freind, advises bleeding in the exanthemata, in order to prevent the disease from falling upon the vital parts. After combating the vulgar notion, that an *eruption* upon the skin forbids such a practice, from a dread of the humour retreating from the circumference to the centre, Dr Freind argues, that "lessening the quantity of blood will attenuate its particles, and give them a greater freedom to circulate, so that by this means the eruption, instead of being checked, advances in a kindlier manner. Therefore in an erysipelas, small-pox, measles, *scarlet fever*, &c. if the symptoms run high, and affect the head, the lungs, or any other part, so as to give intense pain, *bleeding* will be found a very rational and safe practice; and, in fact, though I have tried no experiment more frequently, I never once observed that any of these *eruptions* struck in upon *bleeding* when the disease required that treatment."*

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[*] Cullen's First Lines, Vol. ii. p. 197.

[†] Ibid. Vol. i. p. 291.

[‡] "In case the pulse be full, tense, or hard, immediate recourse is to be had to venesection. The quantity of blood drawn, and the repetitions of the operation, are to be directed of course by the judgment and experience of the practitioner. The relief felt by the patient, the appearance of the blood, and the effect on the pulse, must determine whether it shall be repeated." Dr Dewees's Practice of Physic, Vol. i. p. 221.

[§] "The treatment was strictly antiphlogistic, with *early depletion* when the inflammatory symptoms were such as to require it." Medical Intelligencer, 1820, p. 201.

[||] "Venesection, employed at the commencement of the disease, in cases where the symptoms of re-action are violent, will secure to the patient a comparatively mild disease." Bedingfield's Compendium, &c. p. 281.

[¶] "In *scarlatina anginosa*, where febrile action runs high, bleeding is to be instantly resorted to, and even a second is indicated, where symptoms shew its propriety."—"Even here, in *scarlatina meligna*, I should be reluctant to interdict venesection; but it is only in the first stage it can be used with safety, and never, unless there be high vascular action, or the system appears to be greatly oppressed." Dawson's Nosological Practice of Physic, p. 41, 43.

In ordinary circumstances of the anginose variety, purgatives and leeches, in aid of the usual system of antiphlogistic management, suffice to relieve the complaint. But purgatives require to be perseveringly employed in active doses, until the stage of excitement declines; and their efficacy may be inferred from considerations regarding the extended surface on which they act, and its sympathies with near, as well as remote, organs. This extensive and complicated mucous surface too, is, in fevers, impeded in the functions which it has to discharge as an important emunctory; and hence the necessity of unlocking its secretions, and copiously separating the fluids from the blood.

Second only in importance to purgatives are leeches, applied as closely as possible to the seat of inflammation. By emptying the anastomosing branches of vessels connected with the inflamed membrane or viscus, the congestion of its capillaries is still further diminished, and the resolution of the inflammation promoted in proportion. Such was the practice which I pursued in the first variety of the Bridlington epidemic, and with so much success, as to throw me in some degree off my guard in encountering the more formidable examples of the third variety especially. In these I had the mortification to experience, in several instances, the entire failure of the combined plan of leeches and purgation. The severity of the disease went far beyond the remedies; and even in some of those cases of the first variety in which the patient was saved, as in that of my daughter, it is obvious that life was jeoparded by inadequate measures. To say nothing of the danger arising from severe and protracted cerebral disorder, the sloughing of the fauces was a true measure of the perilous intensity of the inflammation. In several examples, therefore, of the purely anginose variety, I afterwards employed the lancet, which both simplified and shortened the course of the fever. Dr Farre's description of the *cynanche maligna* admirably pourtrays what occurs in the worst forms of *scarlatina anginosa.* "The inflammatory action, which is vehement, effuses coagulable lymph on the tonsils, and, in the worst cases, on the mucous membranes of the larynx; but the strength of the action is soon spent, the lymph perishes, and the surfaces which effused it die and slough, or open into ill-conditioned ulcers." * It is no wonder, therefore, that Dr Bateman, in the severe epidemic which he has described, should have attributed the fatality of the disease in many cases solely to the severe affection of the throat. † To disarm inflammation of the mucous membrane, like this, of its mortal violence, as well as to offer successful resistance to the still more dangerous affections of the brain and stomach, I found it necessary henceforward to employ the lancet with promptitude and vigour; and my success in immediately arresting the fatality of the disease in the first, second, and third varieties, amply justified the measure. The blood in every instance exhibited the buffy coat well-defined.

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* Freind's History of Physic, Vol. i. p. 75. A. D. 1725.

The general rule of management in the severe forms of this epidemic malady being established, it only remains that we should notice those exceptions which imply the utmost circumspection with regard to general bleeding. The cases demanding a delicate and guarded management belong chiefly to the third and fourth varieties, as above delineated, or exclude themselves from that arrangement by the eccentricity of their characters and course. Where there is palpable congestion of the brain and those important viscera immediately concerned in carrying on the business of life, manifested by a sudden and overpowering invasion, as in the Asiatic cholera, we call in the aid of the lancet, the adjuncts being ammonia internally, and warmth externally.

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* Medico-Chir. Trans. Vol. iii. p. 330.

† Reports of the Diseases of London, p. 271.

If any thing can countenance the doctrine of debility from an overpowering contagious miasm, these insulated cases must have this effect. Respect to a debilitating cause, and its immediate effects on the nervous system, doubtless warrants in these instances a modification of the usual plan of treatment, and especially caution in the use of the lancet. Ammonia, the warm or spirit-air-bath, with frictions, together with one moderate venesection, regulated by the state of the circulation, and followed by calomel, constitute in these appalling circumstances the principal resources of art. Dr Armstrong has offered some ingenious suggestions to supply the *hiatus* which every one must feel in our remedies; and Dr Lange of Cronstadt has adopted with great success, in the analogous oppressive stage of spasmodic cholera, the use of salt emetics, and the actual cautery applied to the spine. The inhalation of vivifying gases, galvanism, and other resources of chemistry, are among remedies still under probation. The observation, in short, of the asphyxial form of this pestilence on the arena of British experiment, holds out a reasonable expectation of improvement in the treatment of that oppression of the nervous system which follows the reception of the worst contagious miasms. The intimate union of the nervous and vascular systems, leads us to look for the developement of the injury inflicted on the former in the errors of the latter; and an oppressed circulation is the morbid effect to which our remedies, though not exclusively, are imperatively directed. The most frightful debility is here no obstacle to a cautious employment of the lancet, which, in combination with stimulants, at once lessens present engorgement and future inflammation of the vital organs. The debility of more ordinary fevers will henceforward be viewed through the medium of an analogy, which will strip it of its Brunonian attributes.

The preceding remarks require accommodation when applied to those low typhoid or comatose cases, in which the prostration of the vital powers is less complete, and a partial reaction takes place. In the milder examples of this irregular type the lancet may be wholly laid aside and leeches substituted. "In the irregular form of the congestive scarlet fever, or that in which the excitement is partially developed, purgatives and the warm bath," says Dr Armstrong, "are the best remedies;" and they must be persevered in, he observes, "so long as the general oppression and irregular state of the excitement remain." It was by purgatives chiefly that Dr Hamilton succeeded in an epidemic resembling very much this irregular congestive variety.

Delicate management also is required in the fourth variety, especially in its advanced stages. In adults, indeed, in whom the disease proceeds with a less fatal rapidity, and at the very onset of reaction, also, in young children, the lancet may be used more freely in the former, but sparingly in the latter; but if the inflamed surface bear a large proportion to the whole bronchial membrane, the due decarbonization of the blood is so much prevented, that the patient rapidly becomes apoplectic, or dies exhausted with a livid complexion, lips blue, and a rattling in the air-passages. It is in such circumstances, especially when called in after the disease has made some progress, that general bleeding becomes a doubtful remedy, by further weakening the already too much weakened action of the heart. Here ammonia in small doses, combined with topical depletion, mild purgatives, and immersion in the warm bath, shed a doubtful ray of hope, but too often fail to relieve. Dr Armstrong recommends in these cases about a drachm of the solution of chlorine, mixed with six ounces of distilled water, to be given in the course of twenty-four hours.* The vegetable acids, also, added to bland mucilaginous fluids in this, as well as in every form of the disease, are grateful and salutary. The citrate of potass or soda, in a state of effervescence, is perhaps one of the best febrifuges, though recommended at first in this disease by Dr Watson, as an antiseptic and tonic.† In the decline of fever it is advantageously exchanged for the effervescing citrate of ammonia. The only remaining qualifying considerations of the general rule of practice respect the rapid course of the disease, and the greater irritability of the nervous system of children. The former suggests an early and decisive employment of the lancet in the acute forms of the disease, while both preclude its frequent repetition, the necessity for which is obviated by the powerful auxiliaries which we possess in calomel and leeches. Having made a decided impression on the disease we must desist from over-active efforts, lest nature herself be incapacitated for retracing her devious course. It is a golden observation of Dr Farre's, that, "by those who will take the pains to consider inflammation as a process, it will be understood that it may be checked, but cannot be suddenly extinguished, by the most active means. Time must be allowed for the process to decline, even after the fairest efforts have been made to arrest its progress."‡

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* See Dr Armstrong's Lecture on Scarlatina in the Lancet, Vol. vii. p. 324.

† Med. and Phys. Journal, Vol. xvi. p. 552.

‡ Med. Chir. Trans. Vol. iii. p. 327.

ART. II.—*Case of Extirpation of the Eye-Ball.* By J. H. WISHART, Esq. F. R. S. E., Surgeon to the King in Scotland.

EURETTA DOUGLAS, æt. 13, from Alnwick, February 1832. The right eye projects considerably beyond the orbit; the upper eyelid is very much elongated, so as still to cover the eye when she is asleep. On her looking downwards with the eye, a firm tumour can be distinctly felt near the situation of the lacrymal gland, and extending inwards and backwards towards the bottom of the orbit. About two years ago the eye began to increase in size without any previous pain, and without any evident cause that could be assigned. In twelve months it attained its present size, in which state it has remained for the last year without any visible change.

For the first three months nothing was done for it; but after that, there was such a rapid increase of size, that the surgeon who was consulted, pronounced it to be dropsy of the eye. He applied leeches over the eyebrow, and blisters to the temple, without producing any mitigation of the symptoms. She also got various medicines internally, in the form of pills, powders, &c. without deriving any benefit from them.

At a consultation with Dr Gillespie and Professor Lizars, it was agreed that nothing could be done to save the eye. The total extirpation of the organ was therefore thought proper; the girl herself being most anxious to submit to whatever was thought advisable.

I removed the eye, assisted by these gentlemen and Mr Burt, on the 1st March.

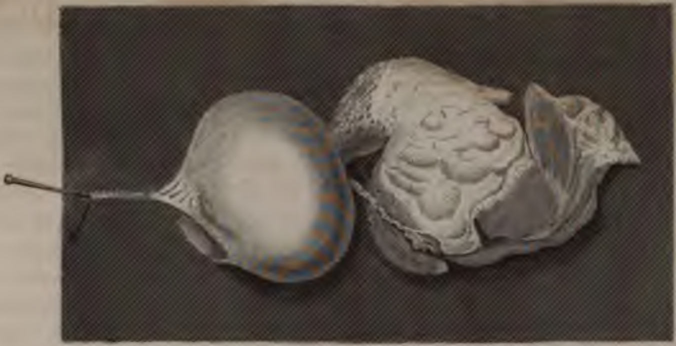
The operation was performed in the usual way, and the whole contents of the orbit removed. The hemorrhage was considerable; but the orbit being filled up with slips of fine lint, a common compress, formed of two or three folds of linen, was laid over the eyelids, and a few turns of a roller over all; the patient was put to bed, and soon after got an opiate.

On examination of the eye after its removal, the disease was found to be seated in the substance of the optic nerve; the coat of the nerve being very much distended, and evidently forming the outer covering of the tumour. The eye itself was found perfectly sound, and of the natural size; the previous enlarged appearance being caused entirely by the pressure of the tumour from behind. The tumour was of a firm consistence, resembling the cerebral substance, generally considered of a malignant nature. A view of the eye, with the tumour attached, is given in Fig. 1. of the engraving.

In about two hours after the operation she did not complain

Fig. 1.

MR WISHART'S CASE OF EXCISION OF THE EYE-BALL.
page 274.



SUPERNUMERARY RIBS, BY DR DYMOCK, page 304.

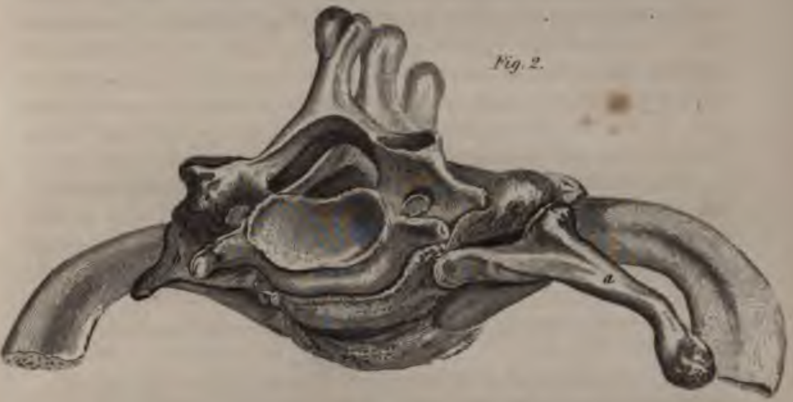
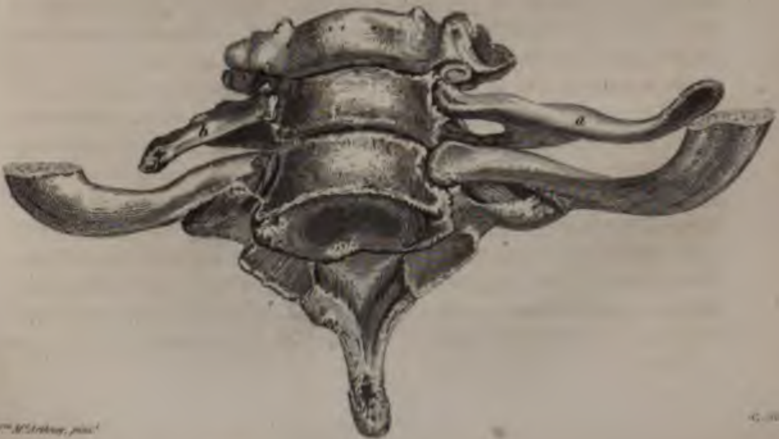


Fig. 2.

Fig. 3.



Wm M'Arthur, pinxt

G. [illegible]

of any severe pain; had a heavy feeling in the right side of the head; pulse 98; took one grain of opium, and slept half an hour.

6 P. M.—Still continues easy. No pain; no thirst; skin cool and soft; has slept a good deal since 4.—8 P. M. No bad symptoms. Pulse 90. The left side of the face and eyelids are considerably swollen, but give no pain. Great inclination to sleep, and not at all restless.

March 2d, 9 A. M.—Continues easy, and slept well. No increase of pain. Pulse continues at 90, as in last report. Feels quite comfortable. She was visited again at 11, at 2, and at 4, and was continuing quite easy, sleeping most of the times when visited.

6 P. M.—Complains of a little more pain; restless; pulse 96, skin rather hot and dry. Has taken nothing but a little lemonade. Has had no passage since the operation.—℞. *Pulv. Jalap. comp.* ℈ii. to be taken immediately. At 9 she was easier, and not so restless. Cold wet cloths to be applied over the dressings.

March 3d, 9 A. M.—Slept well. Does not complain of so much pain. Medicine has not yet taken effect. Has had a little senna tea this morning. Pulse 86; skin moist.

4 P. M.—Has had a free passage. Continues easy. No alteration in pulse since last report.

8 P. M.—Complains of some pain round the eye, from the blood having become hard under the dressings.

March 4th, 9, A. M.—Rather feverish; skin dry and hot; more pain in the eye, head, and temple; more restless than formerly during the night. Ordered the saline mixture, a spoonful to be taken every two hours.

12 o'clock.—Has taken one spoonful of the mixture. Not so feverish; skin moist; pulse 84. Has taken some cool tea, with a little bread soaked in it, since morning. To go on with the mixture. 5th, To-day the compress was removed, and gave considerable relief. There was no discharge followed. A small portion of the slips of lint was removed daily from the orbit. The whole was taken away in three days, very little matter being discharged along with the dressings.

From this time she went on without any unfavourable symptom. She was dressed regularly twice every day; the discharge very moderate all along. A small slip of lint was introduced at every dressing between the eyelids; and a pledget of the same, spread with simple ointment, laid over all. No change taking place from this time, no regular report of the case was kept down to the 14th, when she was still going on favourably, had a good appetite, and slept very well every night.

The discharge was now very moderate, and quite healthy; a small quantity of thick matter was seen adhering round the bottom of the orbit. A weak solution of the acetate of zinc was thrown in with a syringe, and continued every day regularly, the discharge gradually diminishing. She went out daily to walk, and before the end of the month was perfectly well. The upper eyelid, also, has returned to its natural size; and she returned home about the middle of April quite recovered.

This case has had a much more favourable termination than was expected from the opinion formed after the examination of the tumour, which resembled that of many other cases which I had extirpated from similar situations, all of which cases had ended in the death of the patient, except one removed at a very early period of the disease; the patient now enjoying perfect health, and being an active member of the Established Church. I have never met with any cases of the same description as Douglas's in the works of surgery or morbid anatomy which I have examined. The only one resembling it is related by Panizza in his work *Sul Fungo Midollare*, in a little girl six years of age, in which there was found on dissection, not only a small tumour surrounding each optic nerve, but a still larger cerebral mass in the basis of the brain.

In a letter of the date of 23d March 1833, received from Mr Rate of Alnwick, he mentions, "The girl Douglas, in whose case you took so lively, disinterested, and expensive a concern, is growing quite healthy and strong, and you seem to have effected a perfect cure." This has been confirmed by Mr Wilson, son of an eminent surgeon there.

Edinburgh, York Place,
1*st June* 1833.

ART. III.—*Phenomena of the more advanced Stages of Intoxication, with Cases and Dissections.* By F. OGSTON, M. D. Licentiate of the Royal College of Surgeons, Edinburgh.

THE present attempt to illustrate, from personal observation, the phenomena usually presented by the more advanced stages of intoxication from spirituous liquors, it is hoped will not be deemed supererogatory. The subject, as far as I am aware, has not been lately treated at any length; the notices occasionally met with in systematic works are not very full nor satisfactory; while writers on cerebral diseases (who might have been expected to pay particular attention to it) have generally overlooked it altogether. The facts which follow have been chiefly derived from the notes of cases treated at the Police Office of this city for some years back, and the histories having been drawn up either on the spot, or very soon after they were observed, their accuracy may be relied on.

To exhibit a connected view of the whole, the leading features of the cases selected have been thrown together in the form of a table. In doing this, the order of their occurrence has not been followed, but to a certain extent the method adopted has been to place those cases in juxtaposition which seemed the most to resemble each other in one or two of their more marked characteristics.

Tabular View of the Phenomena of the more Advanced Stages of Intoxication.

Cases.	Age.	Sex.	States of the						Termination.
			Pupil.	Pulse.	Sensorium.	Extrem.	Face.	Breathing.	
1.	18	Male.	Dilated.	Impercept.	Prof. coma	Cold.	Sl. flushed.	Slow.	Stupor, coldness.
2.	40	do.	Str. do.	do.	do. do.	do.	Pale.	Laborious.	Fatal in ¾ hour.
3.	60	Fem.	do.	do.	do.	do.	Flushed.	Slow.	Rigors, immediate recovery.
4.	40	do.	do.	do.	Prof. do.	do.	Pale.	do.	Immediate recov
5.	28	do.	Str. do.	do.	do. do.	Very do.	Swol. livid.	Laborious.	Fatal.
6.	30	Male.	do. do.	do.	do.	do.	Pale.	Slow.	Return of pulse & sensation, pupil contracting.
7.	60	Fem.	do.	do.	Prd. do.	Very do.	Flushed.	do.	Stupor, coldness.
8.	22	Male.	Str. do.	do.	do. do.	do. do.	Pale.	Laborious.	Fatal.
9.	38	Fem.	do. do.	do.	do. do.	do.	Sl. livid.	Slow.	Coldness, rigors.
10.	30	Male.	do. do.	Feeb. slow.	do.	do.	Natural.	Laborious.	Delirium, succeed. by stupor.
11.	35	do.	do. do.	68, soft.	do.	Nat. warm	Very pale.	Slow.	Coma for 8 h.
12.	50	do.	do.	Soft, freq.	do.	do. do.	Flushed.	Rapid.	Convulsions.
13.	36	do.	Mod. do.	Feeble.	do.	Cold.	Pale.	Slow.	Stupor.
14.	27	Fem.	Str. do.	Full, slow, feeble.	Prd. do.	Very do.	Flushed.	Very do.	Convulsions, hys. & stupor.
15.	15	Male.	do.	Do. soft.	do.	Coldish.	do.	Calm.	Noisy delirium, ending in stupor.
16.	13	do.	Str. do.	Feeble.	Stupor.	Cold.	do.	Slow.	Immediate recov
17.	19	Fem.	do. do.	Full, slow.	Coma.	do.	do.	do.	Noisy delirium.
18.	30	do.	do.	72, feeble.	Prd. do.	Coldish.	Pale.	do.	Stupor, nausea.
19.	25	do.	Str. do.	Soft, full.	do. do.	Nat. warm	do.	Calm.	Immediate recov
20.	27	do.	do.	84, feeble.	do.	Cold.	Flushed.	Slow.	Stupor, pulse rising to 104.
21.	28	Male.	Contrac.	Full.	Stupor.	Nat. warm	Pale.	Stertorous.	Stupor.
22.	70	do.	Much do	Slow.	Prd. coma.	do. do.	do.	do.	Coma and stertor for 8 hours.
23.	28	Fem.	do. do.	Do. indist.	do. do.	Cold.	do.	do.	Do. do. for 16 h.
24.	32	Male.	do.	108, soft.	do. do.	Nat. warm	Pale and flush. alter.	Do. and puffing.	Symptoms cont. 18 hours, fatal.
25.	19	Fem.	Much do	79, rather firm.	do. do.	Warm.	Pale.	Stertorous.	Coma for 6 h.
26.	27	do.	do. do.	84, feeble.	do.	Nat. warm	do.	do.	Stupor for 6 h. pulse 100, pupil dilated.

From this tabular view it will be seen, that two or three natural groups have been formed, of which, while the members are found to differ considerably from each other, yet the cases in each, when considered as a separate class, present a corresponding degree of mutual resemblance. Thus, if we take the cases which agree in having a contracted pupil, they coincide as much, it will be seen, as regards the state of the circulation, respiration, and animal temperature, as they differ in these respects from the remainder. The cases with dilated pupil have fewer symptoms in common, but their disagreement will be considerably lessened if this class be subdivided into two sets, the one with dilated pupil and imperceptible pulse, and the other with a like condition of the eye, but with less prostration of the circulation. In the remarks which follow, this arrangement, though liable to some objections, will be adopted.

CLASS I.—*Cases with Contracted Pupil.*

It will obviate some appearances of discrepancy in what follows, to state here, that the symptoms noted in the table were those which were observed at the time the cases were first seen; treatment and other circumstances afterwards combining to change their phenomena in certain patients at a later stage.

This, it will be observed, forms the less numerous class, being to the other in the accompaning table as six to twenty. In four of these persons the insensibility was extreme, the patients manifesting no sense of feeling when the skin was pinched, or the nostrils tickled with a feather. In one, the limbs were withdrawn when pinched, and a moaning complaint elicited, while the remaining patient could be roused so as to talk for a second or two, though not intelligibly. In all of these cases there was great muscular relaxation. In two of them the conjunctiva was observed to be injected. In only one was the temperature of the body reduced, and in this instance the coldness was not confined to the extremities, but extended over the surface, except in the vicinity of the heart.

The pulse presented considerable variations, being feeble in one, soft in another, full in a third, rather firm in a fourth, slow and indistinct, at times intermittent in a fifth, and simply slow in the remaining one. Its range was from 70 to 108, its greatest frequency being observed in those who had been longest ill. I may add that I have invariably observed, that, when persons after drinking are seized with coma, the pulse at first is remarkably slow; its rise in frequency (when it happens) taking place afterwards. The skin was soft, never dry or harsh, and in one instance the brow and face were bathed in moisture. The face was pale in all. The paleness in one case alternated with slight flushings. In each the breathing was stertorous, but in three cases the stertor was not constant, but ceased for a short interval, when it again recurred.

In none of these last was the stertor very loud. In only one case had there been previous exposure to cold, and this case was the mildest of the whole. The puffing motion of the cheeks, observed so frequently in apoplexy, was only once noticed.

The effect of treatment was in one case the immediate return of consciousness, the patient however soon relapsing into stupor of two hours' continuance. In another, a slight stupor remained for eight hours, the pulse rose suddenly from 84 to 100, and the pupils passed rapidly from a state of great contraction to the opposite condition of considerable dilatation. This sudden change of the iris from one state to its opposite, was also observed in a case of the second class, in which on the removal of the exciting cause the dilatation gave immediate place to contraction.

I may here allude to another fact regarding the pupil, observed in case 14, where the iris rapidly vibrated for a few seconds between dilatation and contraction, settling at length in the intermediate state, though ultimately again dilating. In case 22, no amendment followed for eight hours; in case 23, the coma, contraction of the pupil, and stertor, continued for sixteen hours; and in case 25, the coma remained for eight hours, each of these ending in complete recovery. The progress of the fatal case will be given afterwards.

The subject of case 22, was an old man, of spare habit, of about the age of seventy. * One evening in November last, he was entertaining a friend from the country, also an old man; the wife and a son of each being present. The bottle was produced, and, during its circulation, the elders began to boast of the high social qualities and superior strength of endurance of their generation as compared with the degeneracy of the rising race. This being tacitly assented to on the part of the juniors, the conversation turned on the drinking feats of the seniors in their younger days; but not being able to maintain unanimity on this point, the two old men, backed each by his respective spouse, betted against each other which would be found to bear most drink. To settle the affair as speedily as possible, it was agreed that glass about of the undiluted spirit (whisky) should be swallowed until one or other confessed that he was vanquished.

This foolish contest continued till two bottles had been emp-

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* The ages marked in the table are to be considered only as approximations to the truth, the real ages having been seldom obtained.

tied of their contents, when our patient fell suddenly from his chair insensible.

Alarmed at his situation, a medical gentleman in the vicinity was called in, and at his request, I saw him soon afterwards. He then presented the symptoms described in the table. The instant removal of the contents of the stomach did not afford any apparent relief. He was put to bed, the head kept elevated, and a stimulating cathartic enema ordered, to be followed by small doses of carbonate of ammonia at short intervals. Next morning by nine he was perfectly recovered.

Case 24, was an unmarried man, of a strumous habit, and not (it was asserted) given to intoxication. He was brought home late one evening in January 1832 insensible, having suddenly fallen down in this state while engaged in drinking. He was put immediately to bed, after which he became sick, and vomited; no danger, however, being apprehended, he was left alone for the night, but not appearing at the usual hour next morning, his landlady went into his room to call him, but found him still insensible. At 11 A. M. when seen, he had the symptoms noted, but no odour of spirits was then perceptible. The pulse through the day rose in frequency till it reached 140, but had become very feeble and small. The face was at times somewhat flushed, though its usual character was that of great pallor. The pupil remained contracted, the brows corrugated, and on the approach of a light he moved away his face. He tossed his head on the pillow, his eyes rolled upwards, the jaws were clenched, and hiccup latterly was observed to come on. Cold applications to the shaved head produced rigors, and were discontinued. He died early in the night. An inspection was refused.

The subject of case 23, was a female of the name of Duncan, of weak intellect. One Sunday in January last, she was left by her family in charge of the house till they should return from church in the afternoon. On entering at four, they found her lying on her face on the floor in a state of insensibility. On a table beside her stood a bottle, which they had left in a cupboard full of whisky when they went out, but which was now empty; a cup near it contained a little spirits. She had never before been known to manifest any liking for spirituous liquors. In less than an hour from this time the contents of the stomach were withdrawn, and consisted of almost pure whisky, with a little of what appeared to be fragments of cheese. On withdrawing the œsophageal tube, a considerable quantity of a glairy tenacious substance followed it.

No evident amendment succeeded the operation. At eight the same evening the face was flushed, the skin hot, and the pulse risen from 70 to 108. Leeches were applied to the head, and afterwards cold applications. Next morning she was sensible, complaining only of thirst and headach. When questioned if she had been long time in consuming the spirits the day before? She answered; that she had "just ta'en a cuppie fu' now and then."

CLASS II.—*Cases with Dilated Pupil.*

SUBDIVISION 1. *No pulse at the Wrist.*—In five of these cases the pupil was observed to be dilated strongly, and in the remaining four somewhat less broadly. In one of these last, the dilatation was confined to one pupil, the opposite one being rather contracted. A strong light in these cases did not produce any sensible contraction. The pulse in each instance was indistinguishable at the wrist, and in two of them the heart's pulsation was only discovered by the aid of the stethoscope. In one person, however, though absent at first, it was observed more than once to return and disappear, being, when to be felt, feeble and intermittent. In all these was there coma; in seven it was profound. In each the extremities, and in five the surface generally, was cold. The face in four was pale; in three flushed; while in the remaining cases it was livid and somewhat swollen a little before death. In six the breathing was slow; in three, which were speedily fatal, it was laborious till the period of its total cessation. Eight of these cases had been overtaken with insensibility, and fallen down in the street; the remaining three had not been exposed to cold.

The contents of the stomach were removed by the stomach-pump in six of the patients. In three of these the sensibility returned soon after its employment, and in the remaining three which recovered, the same thing happened after intervals of from two to four hours, the coma continuing more or less during that time. The natural temperature was longer of returning, and required the aid of warm applications and plentiful bed-clothes. In two cases severe rigors followed immediately on the return of consciousness.

Case 5 was a woman of the name of May Robertson. In February last year, her husband fearing that the child which she was nursing might suffer from her intemperate habits, had it sent to nurse, on which she became so disconsolate, that to cheer her, he one evening presented her with a bottle of spirits; and of this she and a neighbour took one or two glasses before going to bed. Her husband, who slept in an adjoining room, waking at three in the morning, recollecting that she had left the bottle in a cupboard in her bed-closet, and fearing that she might rise and take more of it, went to remove it out of her reach, when he found her stretched above the bed, with the bottle empty in her arms, and herself unconscious, and breathing heavily. I was soon after called, and found her in the state described. A little of the liquor stained the bed-clothes, but whether spilt or vomited could not be known. She died in a quarter of an hour after the visit.

At three in the afternoon of the same day, another medical gentleman and I were desired to inspect the body, in order to report the cause of Robertson's death.

The surface was then generally very pale, with the exception of the lower part of the face, which was slightly livid, and the lips, which were blue. The mouth was twisted a little to one side; the tongue pushed out between the front teeth, which were clenched on it, the protruding part being livid; the head was somewhat swollen, with an appearance of anxiety about the countenance. In one or two points on each cerebral hemisphere, small quantities of clear serum were found effused under the arachnoid coat, which was slightly opaque in these situations. In the lateral and posterior parts of the brain, the veins were turgid with blood of a violet hue, and stood out in full relief from the surface; nearly two ounces of serum in the ventricles, of a reddish colour; a few dark points on cutting into the brain, whose substance was firm and remarkably healthy.

Some spots of dull-coloured redness on the interior of the air-passages, which contained a little frothy mucus. Both lungs dilated, dark-coloured externally, particularly the right; and when cut into, frothy mucus and dark fluid blood were pressed from them, (the latter in considerable abundance,) especially from the right lung. Portions of the lower lobe of the right lung, were hepatized; but when the blood was pressed from it they floated when thrown on water. No fluid in the pericardium; coronary veins turgid; *vena cava*, right auricle, and right ventricle, full of dark fluid blood; left auricle empty; left ventricle in part filled with blood of the above character; and a small quantity of the same was discovered in the thoracic aorta; abdominal aorta empty.

Liver large, firm, greyish on its exterior, but internally of a gamboge colour. From its incisions dark fluid blood could be pressed in considerable quantity. Some reddish fluid effused into the abdominal cavity; gall-bladder full.

The stomach was remarkably small; its plyoric half did not at all exceed the diameter of the duodenum, from which it could scarcely be distinguished; and near the cardiac extremity, its diameter (which was there greatest) was little beyond this.

The *rugæ*, on its interior, were of a dull vermillion tint. The mucous coat of the stomach was soft, easily torn, and readily separable from the others, and had a few dots of effused blood, of a cherry-red, underneath its surface. The duodenum had contracted strong adhesions to the pancreas, which, in the vicinity of these, had a full rose hue. The peritoneal coat of the smaller intestines was reddened throughout; the redness becoming darker (almost livid) at the lower extremity of the ileum. The larger intestines were empty of feces, but distended with gas.

The kidneys pale, and exhibiting a malformation; the ureters, which were large, coming out on their anterior surface; bladder, gall, abdominal parietes, loaded with fat.

A. W. (case 8) came home one night in April last much intoxicated, as was his usual practice. Before he could be got to bed, he became sick and vomited a little, and afterwards small quantities through the night. During the first part of the night he was restless, slept little, and when awake, appeared confused, and unable or unwilling to give any account of his feelings. After this he took more spirits; and towards morning became very cold, and fell into what was considered a sound sleep; but as he was soon observed to breathe heavily, and could not be awakened, his relations becoming alarmed, called me in at nine o'clock. He was then in the state described in the table; his chest began to heave convulsively; he threw out his arms rapidly, withdrawing them as suddenly; the lips became blue; and in a few minutes he expired. Some spasmodic twitchings of the muscles of the face were noticed an instant or two before death.

Inspection of the body was allowed twenty-six hours after.

The thumbs were drawn in to the palms of the hands. The face was slightly livid and swollen. The tongue was pressed against the incisor teeth. The stomach and intestines were empty and contracted, except at the arch of the colon, which was much distended with gas. Bladder empty. Red lines on the prominent part of the *rugæ* of the stomach. Gall-bladder filled with bile. Liver pale, and somewhat mottled. Dark fluid blood flowed from its incisions when cut across. A small quantity of bloody serum in the pericardium and cavity of the chest. The lungs on both sides were congested with dark fluid blood, particularly their lower lobes. The right lung was proportionably larger than the left, and its colour was also darker than that of the other. Dark blood was found in the ventricles of the heart, pulmonary artery, and *vena cava descendens.* The scalp vascular; the blood fluid The vessels of the *dura* and *pia mater* were minutely injected with red blood over the greater part of their extent. The substance of the brain was firm, and presented numerous bloody points on incision. The blood in the veins generally was fluid and dark-coloured.

G. W. (case 2) was brought to his house one afternoon in July 1831 insensible, and put to bed at eight. When seen, he appeared with the symptoms in the table. His breathing was carried on in a peculiar manner. The shoulders were elevated, and the head at each inspiration drawn downwards to the chest, returning instantly to its former position. He was pale, and an appearance of great exhaustion and anxiety was manifest in his countenance. He had but a faint odour of spirits; but was known to have been drunk during that and the preceding day. He died in less than an hour.

Twenty hours after death, when the body was inspected, the face was pale, fuller than when in life, and the features retaining, but in a slight degree, their former anxiety. The longitudinal sinus was very full of dark fluid blood. The arachnoid coat was opaque at several points, underneath which were minute quantities of turbid serum. The *pia mater* was vascular at the base of the brain. The brain was firm, with numerous red points on its cut surfaces; ℥iiss. of turbid serum in the lateral ventricles. The lungs filled the cavity of the chest, covering the pericardium, and contained a quantity of dark fluid blood. The same fluid was found in both ventricles of the heart. Some effused blood in the stomach, which smelt weakly of spirits. Its mucous coat was extensively softened, and easily lacerated, and had a dull red colour in several places. The intestines were of a dull red, from injection of their vessels. The larger were empty and contracted; the smaller distended with gas. Liver pale externally, hypertrophied; internally of a buffy colour, and slightly congested with dark blood. Gall-bladder full. Kidneys large, flabby, and their cut surfaces bloody. Bladder empty.

CLASS II.—*Cases with Dilated Pupil.*

SUBDIVISION 2. *Pulsation at the Wrist.*—The patients in this subdivision are more numerous than in either of the other sections in the table. The cases most nearly resemble those in the first subdivision of this class, and are to be considered, perhaps, as but milder forms of the same morbid condition. None of them proved fatal; and all yielded more or less readily to treatment. Eight of these persons had been exposed to the atmosphere at low states of temperature; but in the other three coma came on without exposure to cold. The pulse varied considerably in its leading character; in six being feeble, slow in four, and frequent (112) in only one. It never approached to hardness or strength. The greatest reduction in frequency observed was 46; in another case it was rated as at 54. The coma was deep in only three cases; the others being sensible to, and shrinking from pain when the limbs were pinched smartly; and in two persons the insensibility amounted only to slight stupor. It was remarked in one patient, that although the coma seemed pretty deep, he aroused himself at intervals, and roared out snatches of Bacchanalian songs at the highest pitch of his voice, though even at these moments he was totally unconscious of his situation, and when shaken, called out "murder."

Some of the patients in this subdivision had walked into the police office themselves; and, after intervals of noisy or quarrelsome conduct, had sunk into deep insensibility. Two of the mildest of the cases looked up, and even made complaints of the harshness of the operation to which they had been subjected, at the moment of or shortly after its enforcement; yet it is curious to remark, that after their full recovery, they had no recollection of any thing that had been done.

In three cases of this section, the temperature even of the extremities was little below the natural; in six the limbs were cold, in two of these moderately so; while in one case the reduction of the heat was very considerable, even the whole surface.

The most usual appearance of the countenance was that of flushing. In four cases it was observed to be pale. In one the pallor was strongly marked.

It may be remarked that the flushing of the face, in more than one instance, occurred in cases where the character of the pulse was that of marked feebleness or slowness; while in the former subdivision the same thing was observed, although the pulse was wanting altogether at the wrist.

The breathing was unusually slow in one patient; so slow as seven inspirations in the minute. In one case the respiration was quick, and in one laborious.

In only two persons did the dilatation of the pupil persist after treatment. The pulse on this almost invariably rose in frequency and increased in strength. The heat returned slowly to the extremities, in the cases in which the temperature was previously reduced. Three of the cases passed at once from coma to noisy delirium,—one of which was very violent, and ultimately relapsed into insensibility. In one case no perceptible amendment followed treatment for eight hours; and two ended in severe general convulsions.

As the occurrence of convulsions after alcohol is considered as rather unusual in these cases, I shall detail those now alluded to at some length. It may be right to premise, however, that the male patient, as was afterwards learned, had formerly been subject to convulsions ever since a fracture of the skull, with depression, received some years before; while in the female, the convulsions, if not wholly hysteric, were mingled, as will be seen, at one stage with symptoms undoubtedly hysterical.

Roderick M'Donald, (case 12) in October 1831, was observed one afternoon at four, to fall down on the street insensible. He had been drinking for three days continuously, and was observed at the time to be much intoxicated. When brought to the Police Office, he became sick and vomited. To the symptoms noted, were soon added severe general convulsions, during which he required powerful restraint to prevent him from injuring himself. He contracted and extended his arms with sudden violence, threw out his heels, and twisted himself in all directions. He frequently remained in a state of complete opisthotonos, resting for some minutes on his head and heels. The face was pale and covered with sweat, except during the height of the convulsive paroxysm, when it was turgid and livid. An antispasmodic mixture procured an alleviation of the spasms, and a few divided doses of sulphate of zinc brought on full vomiting. He was then able to be conveyed home.

At seven the same night, I was again sent for, and found M'Donald convulsed as before. The face was much flushed, and during the greatest severity of the paroxysms became livid. The pupil was once more dilated. When the spasms abated, he complained of pain in his loins, which he stated was most urgent immediately before the occurrence of a paroxysm; and on pressing the spine in this situation, the convulsions instantly returned. His pulse, during the intermissions, was now full and strong. It was discovered that he had had recourse to spirits since he was brought home, and he smelt strongly of them. He was bled to syncope (℥xx.) when the spasms ceased, and did not again recur in any great severity; and he passed a tolerably good night.

Betty Smith (case 14) was brought to the Police Office on the afternoon of November 5, 1832, in a state of insensibility. She vomited soon after some liquid smelling strongly of whisky. She presented the symptoms marked in the table. After the removal of the contents of the stomach, which were fluid and abundant, she became somewhat sensible, but disposed to stupor. In a few minutes she began to grind her teeth strongly; and slight convulsive twitches of the muscles of the face and neck took place, extending to the hands and feet, which (particularly the former) were soon in a perpetual succession of darting motions. Lastly, the muscles of the spine partook of these spasms, and opisthotonos came on, with locked-jaw. At these moments she could scarcely be kept from rolling off the mattress on which she lay. The face was now more deeply flushed; the pulse fuller, and more firm. During the periods of partial intermission which took place, she puffed out her cheeks as if blowing from the mouth; and there was some froth about the lips.

Antispasmodic medicines failing to alleviate the spasms, a vein was opened in the arm, and dark thick blood flowed away slowly, till seven or eight ounces had been lost, when the convulsions ceased, and she appeared pretty collected, conversing with some acquaintances who had entered. She complained of cold, and a sense of heavy pressure near the chest, and was well covered with bed-clothes. In half an hour from this time she relapsed into stupor, and the convulsions returned as before. To the above-mentioned symptoms others were now associated,—such as rolling noise and heaving of the stomach, which extended upwards to the throat, when she appeared as if choking, interruption and difficulty of breathing, sighing, sneezing, occasional paleness, and rapid tremulous motions of the iris. Antispasmodics, which were again administered, removed these latter symptoms; but the convulsions continued to increase in severity, the pupil fixed in the dilated state, and stertor was heard occasionally. Cold water was poured on the head from a small height, and abated the symptoms; and on their recurrence a second and a third time, its repetition was attended with the same benefit. Her pulse at this time was small, feeble, and irregular; the surface was cold; and she appeared very faint and exhausted, and sinking fast. Some port wine was therefore exhibited, on which the spasms once more threatened to return, but were checked before they had time to become general by the affusion of tepid water on the head. She was long in a faint and exhausted state, but quite sensible, complaining of her bones being 'as cold as ice,' though the skin gave to the hand the sensation of burning heat, while her teeth chattered violently. Vessels of warm water were applied to the feet and sides; and by eight she was able to be carried home, and continued well when seen an hour afterwards. I may add that she was seized next day with the epidemic cholera, then prevalent; but what the result was is not known.

Before quitting this part of the subject, I shall subjoin the morbid appearances found in the body of an infant which appeared to have owed its death chiefly, if not wholly, to the intemperance of its mother, a woman addicted to habits of deep intoxication both before and after the period of its birth.

On the 8th day of March last, I was requested to inspect the body of James Malone, æt. six weeks. He had been seen apparently in health late on the previous night, and was not known to have had illness at any time previous. At six on the morning of the 8th, he was discovered in bed dead, his parents, who had been drinking for several days, having gone out to a tavern. At one the same afternoon the body was examined. The face had an anxious look, and was withered and wrinkled like that of an old person; it was slightly livid, and the lips blue. Loose folds of integument about the neck and the tops of the thighs and arms; pupils slightly dilated; tip of the tongue in contact with the incisor teeth; on one of the thighs were two blue spots not elevated, under which the cellular membrane was red, without any distinct effusion of blood; fingers semi-bent; toes turned downwards, and when extended, regained their former position.

The spinal marrow was healthy; the cranium adhering firmly to the *dura mater;* veins on the exterior of the brain turgid; the *pia mater* red, and minutely injected; the brain firmer than usual at such an early period of life, and when divided, it showed a few bloody points; and four drachms of serum tinged with blood, were collected from the ventricles and base of the skull.

The lungs were expanded, posteriorly of a deep purple colour; the lower margins of both lungs hepatized, the middle and upper portions filled with dark fluid blood; the air-passages healthy, but contained a small portion of frothy muco-purulent fluid in their ultimate divisions. Both ventricles of the heart were empty; the *foramen ovale* closed; and both auricles, the pulmonary artery, aorta, and *venæ cavæ*, contained dark fluid blood.

The stomach contracted to half its usual size, was filled with a yellowish liquid of the consistence of gruel, similar to what was subsequently found in the *duodenum* and gall-bladder, both of which viscera were distended with it; the *jejunum* and *ileum* inflated with gas, without any liquid or solid contents; the colon and *rectum* empty and contracted; and the *omentum* and mesentery were red in several places. The liver exteriorly was of a deep red colour, excepting two yellow patches of the size of a sixpence; its interior dark-hued, and congested with dark fluid blood. The bladder was empty.

I had an opportunity, in April 1831, of seeing the body of a person of the name of Shemack, who had been found at the harbour one stormy night, lying in the sleeping posture, but quite dead. His feet were in water, but his body-clothes were dry, and the corpse, when laid out, retained its heat for several hours, the joints remaining flaccid. It was known that he had been drinking during the same evening; and it was supposed that he had been on his way home when overtaken with insensibility. The pupils were fully dilated, the features swollen, the lips blue, and the face slightly livid; but an incision not being attainable, it could not of course be known whether his death was owing to the exposure to cold, or to the intoxication, or to both these causes combined, or whether the case was one of apoplexy.

The morbid effects of alcohol on the brain seem to vary somewhat in different cases. In some instances without much previous excitement, but always with more or less mental disturbance, a direct prostration of the functions of the brain occurs, the intellect, the power of voluntary motion and sensation, failing simultaneously. Here we observe the face pale, the pupils contracted, the eyes more or less lively, or even injected, the pulse full or soft, or both, usually above the natural frequency, and tending to a greater rise, while the temperature of the surface is uniform over the body, and at or above the usual heat, seldom below it. In those cases the circulation, respiration, and the generation of animal heat, may go on for a considerable time, notwithstanding the paralysis of the brain, or they may continue till that organ has recovered from its torpor, provided the body be not exposed to a cold atmosphere, or be placed in circumstances otherwise unfavourable. Of this nature seem to be the cases in class 1, which, (not having had an opportunity to ascertain the cause of death in the only fatal case,) I shall now take leave of.

In other instances, the effects of the poison are widely different. After a longer or shorter period of increased action, indicated by the degree of unusual mental vigour, and with or without the exposure of the body to cold, the brain is observed to become oppressed, the powers of voluntary motion, which have been previously lessened, fail entirely, the mental manifestations are suspended, and in severe cases sensation is completely lost. In the great majority of cases the approach of this state is gradual. The person feels drowsy, and appears to fall, as it were, into a sound sleep; but if the attempt is made, it is discovered that he cannot be aroused to consciousness by any effort, or should it partially succeed, it is seen that he is scarce sensible of any thing around him, and he immediately falls back into the same situation, his limbs remaining in the position in which they may happen to be placed. At this period the face is pale, with or without nausea, or it is flushed; the eyes suffused, sometimes glazed, the pupils dilated, and contracting, if at all, but very imperfectly, by the stimulus of light; and the temperature of the head above the natural standard, while at the extremities, or on the surface generally, it is considerably lowered, or it is but little affected, as in mild cases, in either situation. The pulse presents different degrees of departure from the regular state, and may be feeble, slow, or altogether wanting at the wrist.

The usual state of the breathing is that of slowness or unfrequency; the separate acts of inspiration and expiration, particularly the former, occupying a very short time. If the hand be placed over the chest, the ribs cannot be felt to rise or fall, the respiration being wholly or chiefly abdominal. In those cases in which the breathing was laborious, the laborious respiration appeared to have occurred in a more advanced stage, or in these the inspirations seemed to be convulsive, the chest expanding by the rapid contraction not only of the usual, but also of the associated muscles of respiration.

On examining after death the bodies of those who die from the effects of intoxication, we find appearances corresponding more with those which are observed in persons who have perished of asphyxia than of apoplexy, although to this last cause their death is commonly attributed. The countenance exhibits marks of more or less anxiety, or even of convulsion, the eyes are prominent, the pupils dilated, the face swollen or livid, the lips blue, the cellular tissue vascular, its blood fluid and dark, redness in the air-passages, the lungs dilated, and an accumulation of dark fluid blood, along with more or less frothy mucus in their substance. The right cavities of the heart, the *venæ cavæ*, and the pulmonary artery, filled with blood of the same character, with its presence, but in less quantity, in the left ventricle, coronary veins, and *aorta*, while the liver and kidneys contain in considerable quantity the same dark fluid, which is best shown on squeezing them in the hands. Within the cranium, in addition to the effused serum, we find dark blood in the veins and sinuses, or even in the substance of the brain.

The effused serum is the only morbid appearances said to be invariably found within the head, and hence, perhaps, the general opinion that death in cases of intoxication is caused by apoplexy, although its quantity, judging from the cases narrated, is seldom considerable, and that this effusion may take place even previous to the occurrence of coma, and without involving the necessity of an unfortunate termination, appears to me extremely probable, for the following reason. Leaving out of view its frequently being observed in cases of slow death from various causes, I have found serum effused between the membranes and in the ventricles, in two bodies I had an opportunity of examining, where the parties had drowned themselves while in the stage of violent excitement from alcohol. In one of them, four ounces of serum were collected. The intoxication in either case (for their previous histories were known,) was not so deep but that if suicide had not been committed, recovery was certain. Effusion is not set down in authors on medical jurisprudence, where accuracy is expected, as a consequence of death by drowning; and it will scarcely be thought in the above instances that it occurred during the dying struggle, or that it was a *post mortem* change.

That the morbid appearances after fatal intoxication are less broadly marked than in some other instances of death by asphyxia, for example drowning, will be readily conceded. But it must be taken into account, that in intoxication the state of the brain is one which little favours a severe struggle for the purpose of overcoming the obstacles to free respiration, presented by the gorged state of the lungs. Yet even in drowning, when the person in falling into the water strikes some sharp body, so as produce concussion of the brain, the morbid changes may be less decided than even in the cases narrated.

The explanation which best applies to the phenomena of fatal intoxication seems to be as follows. The brain, from the continued action of the alcoholic stimulus, has for a time an increasing quantity of blood sent into its vessels. These vessels relieve themselves from their overloaded state by the effusion of serum on the surface and into the ventricles; or this fluid may accumulate in the extreme vessels or in the veins; or both states (effusion and congestion,) may exist, inducing coma. The brain thus temporarily rendered incapable of efficiently performing its functions, other parts of the system are involved, and the first to suffer are the muscles of respiration; the chest expanding and contracting inefficiently and unfrequently, and thus less of the vitiated air is expelled, and less fresh air admitted, than is sufficient for the purposes of respiration. The same cause which retards the motions of the chest, hinders the due performance of the chemical changes which the blood undergoes in the lungs themselves. The blood is retarded in the pulmonary vessels, and when it at length reaches the left side of the heart, it has not undergone the necessary arterialization, but is forwarded in the venous state to all parts of the body. The brain and the respiration thus affected, heat is generated in less abundance than usual, and the temperature fails at the extremities and on the surface, and the body is less capable of resisting the impression of the surrounding atmosphere. On the brain, the unchanged blood produces still more deleterious effects, destroying, as soon as it has reached it, its remaining vitality altogether. The heart yet continues to contract feebly and rapidly, but as soon as the dark blood arrives at the coronary arteries, the irritability of this organ is exhausted, and its motions cease, and with them life is extinguished.

Congestion of the lungs is favoured by various circumstances. The languid circulation at the surface and extremities causes the blood to accumulate in the central parts, and the feeble action of the heart, by diminishing the supply in the arteries, increases proportionally that in the veins, which thus returns more of this fluid to the lungs, while the capillaries of that organ, from the torpor of the brain and nerves, are not active in forwarding it to the pulmonary veins. It is not to be supposed, however, that no effort is made by the system to overcome the obstacles thus thrown in the way of the due performance of respiration. On the contrary, notwithstanding the state of the brain when the blood is accumulating in the lungs, we see the breathing, which was previously slow, becoming before death laborious and convulsive, the associated called in to the aid of the usual muscles of respiration, and these forced efforts continuing, though often without any beneficial end, the struggle (as already stated) being perhaps less vigorously maintained, and the system yielding sooner, than if the sensorium had been in a state of intensity.

That intoxication does not oftener terminate fatally, arises also from these amongst other causes.—The stomach, in one case, by the occurrence of spontaneous vomiting, relieves itself from the whole or a part of the poison, and after a few hours of coma, slow breathing, and feeble or absent pulse, the person recovers. If the alcohol have been recently swallowed, the recovery of consciousness may be immediate—the respiration becoming free—the heat returning slowly to the extremities, and a considerable reaction taking place. The same thing is observed when the alcohol has been removed artificially, the return to health being less immediate when time has been afforded for part of it being absorbed. Such is also the case when the dose is not so great as to induce dangerous depression of the vital powers, the greatest bar to recovery in all these cases being the exposure of the body to cold, or the effects of an unfavourable position.

Some of the direct effects of alcohol have hitherto been omitted to be taken into consideration. This fluid seems to act as a local stimulus to the stomach, giving rise to irritation of its nervous coat, which in confirmed drunkards tends to further changes. Thus, in such instances, dissection discovers the mucous coat thickened and softened, and this softening is not confined to the stomach, but is met with occasionally in the smaller intestines throughout their whole extent. I lately found in a person of this character the whole of the coats of the stomach firm and thickened, to at least three times their usual size. The smaller intestines are often found injected, and ulcerations are observed in the lower portion of the ileum.

The mottled liver in a state of hypertrophy, and changed from its healthy colour, is also to be considered as indicating the previous existence of irritation of a chronic kind.

The kidney, in like cases, is found enlarged, softened, and paler than usual, and the bladder thickened and of considerable size.

That alcohol acts as a stimulus to the veins has seldom been disputed, and may account for the injected state in which the *pia mater* is frequently seen on dissection. That the fluid reaches this organ through the medium of the circulation, is proved by its speedy reaction on the kidneys, and its presence in the breath even after its entire removal from the stomach.

The breath is, accordingly, observed in many cases to present a strong odour of spirits when none can be detected in the stomach on their removal. Besides, the presence of alcohol has been detected in the ventricles of the brain, several cases of this kind being on record. Doubts, however, having lately been thrown on the accuracy of these instances, I am happy to be able to add one to their number. The body of a woman, æt. 40, of the name of Caltie, who was believed to have drowned herself in a state of intoxication, was found on the 23d of August 1831 in the Aberdeenshire canal. In company with another medical man I was requested to inspect the body, in order to report the cause of death, no one having witnessed the act. In addition to the usual appearances in drowned persons, we discovered nearly ℥iv. of fluid in the ventricles, having all the physical qualities of alcohol, as proved by the united testimony of two other medical men who saw the body opened, and examined the fluid. The stomach also smelt of this fluid.

When persons during a state of intoxication are seized with apoplexy, it must be often difficult, if not impossible, to distinguish the real nature of the attack. In cases of the second class, the absence of stertor will give some assistance in judging that there is no apoplectic seizure. In instances of the first class, the state of the pulse does not differ much, if at all, from that noticed in certain apoplectic seizures. Between cases of this class and concussion of the brain when the patient is in drink, there is a strong resemblance; as also between these and the effects of blows received on the cardiac or epigastric regions. In these last, however, although there be found occasionally insensibility, dilated pupil, and a soft slow pulse, and retarded respiration, the coma is seldom deep, and the patient can be easily roused, at least I have remarked this in two cases of that nature which I have met with.

The danger in cases of intoxication where coma exists, is to be judged of less by the degrees of it which prevails, than by the state of the pulse, the temperature of the surface, and the respiration. When the pulse is feeble, or wanting at the wrist, the patient growing cold, the respiration becoming laborious, and the alcohol out of the reach of removal, the case is to be looked on as very dangerous, though even in this state not necessarily fatal. The maintenance of the heat of the surface, or its restoration when low, and if absolutely required, (however contradictory it may seem,) stimuli, selecting those of a more diffusible kind, will generally ensure recovery, if the patient is not already in a state of asphyxia. But even in this last case, the patient is not absolutely to be despaired of, though all the fatal cases recorded above were in this state when first seen, with one exception.

Of the propriety of emptying the stomach, in cases of intoxication to a dangerous extent, when it can be safely done, there can be no question. In extreme cases, the stomach is too torpid to admit of the exhibition of emetics, which require more time for their action in these cases than it is prudent to delay. Pressure, however, on the epigastrium, when the stomach is full, will insure their effect. This alone is sometimes sufficient to induce the organ to throw up its load, particularly if the œsophageal tube be first introduced. When the stomach is not distended, the introduction of warm water will be often necessary before the contents of this viscus will pass into the stomach-pump. When solid food abounds in it, fluids must be injected, till its distension cause the organ to contract for their removal; which contraction may be assisted by pressure on the epigastrium. The obstacle presented by the presence of a quantity of the glairy matter already alluded to, may be overcome by diluting it, when it either passes by the tube, or comes away naturally afterwards. When the patient smells strongly of spirits, its odour will not always be perceived in the contents of the stomach. The contrary is sometimes the case,—this fluid having been previously absorbed. When it exists in the stomach, however, its presence may always be detected in the breath,—the alcohol almost immediately being exhaled by the lungs.

The indiscriminate practice of general blood-letting by persons called to a patient suffering from an overdose of ardent spirits, though a common, is a most pernicious one. In cases of the second class, certain symptoms may seem to call for its employment; yet even in these it will usually be found absolutely injurious. In case 7, it was tried under the following circumstances.—The subject of the experiment was an old woman, very full and plethoric, from whom a large quantity of spirituous fluid was withdrawn without the removal of the coma. The face was flushed, approaching to lividity; the pupils much dilated; and the pulse, which had returned, becoming rather firm, and rising in frequency. On opening a vein, (the external jugular,) the pulse rose at first still further, and the stupor was lessened; but the loss of a few ounces of blood caused the pulse at the wrist to fall, and ultimately to disappear. The coldness increased, and, but for stimuli, she was likely to sink altogether.

Its deleterious effects have been related in case 12.

Several antidotes have been proposed in order to counteract the effects of alcohol. Of these the best is the ammonia, particularly the carbonate, or, what is perhaps more convenient, the *ammonia acetatis.* Vinegar I have tried in two cases; but, as far as these were concerned, with no beneficial effect.

One case of the application of cold affusion has been already detailed; and, where the temperature of the head is steadily high, and that of the surface generally not too much reduced, it is at once a safe and efficacious remedy.

In unmanageable delirium, the tartar-emetic in nauseating doses calms the patient effectually; but its effect must be kept up for some time, otherwise the delirium returns in all its former violence.

The maintaining of the natural temperature of the surface is a matter of prime importance, and is sufficient in many cases, after removing the contents of the stomach, to insure recovery. It is not sufficient to apply warmth to the extremities. In severe cases heat must be applied, through the chosen medium, to the epigastrium, to insure its speedy effect. Many persons, there is reason to suppose, die from the exposure to the effects of cold, when in a state of intoxication, which in other circumstances would not have been dangerous. The maintenance of the head in an elevated position in bed, and the removal of all ligatures from the person, are measures not to be neglected in patients labouring under the influence of spirituous liquors; and, while coma continues, they are to be watched, lest they should get into a bent or folded position, or lest the breathing should become laborious. Might artificial respiration be beneficial in cases threatening a fatal termination? It appears to me, that its efficacy could not be expected to be very great where the means detailed have proved inefficacious; for in such cases, we have a previously morbid condition of the brain to cope with, and a poison present in the blood, depressing the powers of life, and throwing difficulties in the way of a speedy recovery.

It might, however, be worth a trial.

Aberdeen, 16*th July* 1833.

ART. IV.—*Report of the Obstetric Practice of the Wellesley Female Institution during the year* 1832. By HENRY MAUNSELL, M. D. Member of the Royal College of Surgeons in Ireland, Accoucheur to the Wellesley Female Institution, Assistant-Physician to the Magdalen Asylum, and to the Institution for the Diseases of Children, and Lecturer on Midwifery, &c. at the Medical School, Park Street, Dublin. (Read at the Surgical Society of Ireland, May 3, 1833.)

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IN drawing up the report of the obstetric practice of the Wellesley Female Institution during the year 1832, which I have now the honour of laying before the Society, I have endeavoured, in the *first* place, to present, in an available form, as much information of a statistical character as I have been able to collect from the books of the Institution. In the *second* place, it has been my object to give brief, but candid, abstracts of any cases remarkable for difficulty or other peculiarities, which were met with during the year. In this way, although the number of cases is not very large, yet, as the registry has been kept with considerable accuracy, it is hoped that some information, not unimportant to an inquirer into statistics, may be communicated; and at the same time, that a few practitical sketches of some of the more difficult portions of the subject may be exhibited, which, being faithful delineations from nature, may perhaps be acceptable to a young practitioner.

The total number of cases attended from the 1st January 1832 to the 1st January 1833 amounted to 442. Of these 19 were abortions, leaving a balance of 423 actual labours. From these were produced 431 children, there having been eight cases of twins, or one in $52\frac{7}{8}$. The proportion of the sexes among the children was 211 males and 220 females,—numbers remarkable, as being nearly the reverse of the calculations of Mr Finlayson, the celebrated actuary; that gentleman estimating the average production of births at 105 males to 100 females.* The number of children dead-born, amounted to forty three, or one in ten, apparently a very large average, but to be accounted for by the fact, that a considerable proportion of these children were premature, and either themselves manifestly syphilitic, or the offspring of parents who had previously aborted, or had premature labours in consequence of a syphilitic taint.

The ages of the 442 women attended were as follows:—

Under 20 years,	-	23 women.
Between 20 and 25,		121 ———
——— 25 and 30,		175 ———
——— 30 and 35,		80 ———
——— 35 and 45,		43 ———

The duration of labour in the 423 labour cases, was according to the following table:—

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* Dr Rutty, in his Natural History of Dublin, gives three tables of births during consecutive periods. In the first, (from 1699 to 1723,) the males are to the females as twenty to sixteen: In the second, (from 1723 to 1757,) the proportions are nearly equal, being 24,274 males, and 24,239 females: In the third table, however, (from 1757 to 1770,) the proportion of females is remarkably increased, being 13,607 to 12,467 males. This remarkable diminution of males Dr Rutty attributes to the increase of the use of spirits, which he states to have taken place in 1724, and thinks to have been very unfavourable to vigorous propagation. Information upon this subject is desirable, as it has been made by Mr Finlayson a ground for difference in the value of annuities upon male or female lives, which has also been acted upon by at least one Insurance Company.

Of 6 hours and under,	-	200 cases.
Between 6 and 12 hours,	-	146 ——
——— 12 and 18 ——	-	35 ——
——— 18 and 24 ——	-	24 ——
——— 24 and 48 ——	-	15 ——
Of 60 hours,	-	2 ——
— 72 ——	-	1 ——

In the 415 cases of single births, the presentations were,—

Natural 401, including two face presentations, and six with the face to the pubis.

Of the lower extremities	7, or 1 in $57\frac{6}{7}$
—— upper ———	4, or 1 in $103\frac{3}{4}$
—— placenta -	2, or 1 in $207\frac{1}{2}$
—— funis -	1, or 1 in 415

In the eight twin cases, the presentations were natural in four cases.

First child, natural; second, of the lower extremities in two cases.

First child, of the lower extremities; and second, natural in two cases.

The sexes in these were,

In 3 cases both males.
In 3 —— —— females.
In 2 —— one of each.

The perforator was employed twice, or once in $211\frac{1}{2}$ cases.

In three cases there was severe hemorrhage after the birth of the child; but in all the women recovered.

In six cases, or one in $70\frac{1}{2}$, there was retention of the placenta, requiring manual extraction.

Of the whole number of 442 women entered upon the books, seventy are marked as having had previous abortions; and this number, although in the very large ratio of nearly one to six, I believe to be considerably under the average of abortions occurring among the lower classes in this city. The extraordinary frequency of the accident may, no doubt, be in some degree accounted for by the dissolute habits of the poor, and the numerous privations and hardships to which they are subjected. It must, however, though not noticed as such, operate as a considerable check upon the natural fecundity of the species.

Crotchet Cases. *—Of the two cases in which the perforator was employed, one recovered without a bad symptom. The

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[*] For valuable assistance in these and other cases, I have to acknowledge myself much indebted to the kindness of Drs Darley and Gordon of this city.

woman was considerably deformed, and had been in labour seventy-two hours. The only remarkable circumstance, was a frequent and copious discharge of gas from the uterus during and after the delivery.

In the second case, the result of which was unfavourable, the face was toward the pubis, and the child remarkably large; but as the patient was well-formed, only thirty-three years old, and had borne four living children, no apprehension of the result was entertained at the commencement of the labour. The only unfavourable circumstance was the existence of obstinate costiveness for several days, which to the last resisted the full employment of enemata and purgatives. The operation was performed about thirty hours after the commencement of labour, the woman having then become suddenly restless, with a quickened pulse, sunken countenance, acute pain of abdomen, and vomiting. The head was so high as to be out of the reach of the common forceps, the use of which was also forbidden by the irritable condition of the vagina. Nothing material occurred during the operation. It was not, however, followed by any relief: the symptoms above enumerated became more urgent; no evacuations could be procured from the bowels, and she died in twenty hours after delivery. The after-treatment consisted chiefly in the application of leeches to the abdomen, and the exhibition of purgatives, with, in the latter periods, calomel and opium. No inspection could be obtained.

In the cases of *presentation of the lower extremities*, little worthy of remark was observed; they all terminated favourably as far as the mother was concerned; the greater number of the children, however, were lost; several being premature births.

In the four *arm cases* the mothers did equally well. In two turning was performed, the children being dead before the patients were seen. In one, which was at first under the care of a very ignorant midwife, the arm had been protruded from the vagina for sixty hours before application was made at the institution. All pains had ceased, but from the closeness with which the uterus had contracted upon the child, very great difficulty was experienced in getting up the hand. By persevering in very gentle efforts, however, this was at length accomplished, and immediately upon the bringing down of the foot, pains occurred, which at once finished the expulsion. In the second case, the membranes had been for some hours ruptured, with very violent pains; sixty drops of laudanum were given, which somewhat diminished the uterine action, and turning was then with some difficulty effected. In the other two arm cases, spontaneous evolution took place. In one, which was seen by Dr Churchill, the child appeared to be of the natural size, the mother asserting that she was within a fortnight of her full time.

In the second case, the child was born alive. From its size it appeared to be early in the seventh month, the mother supposing herself to be six months pregnant. At the time of my being called to this case, the arm was hanging from the vagina, and had been in that position for some hours; it was cold and livid. Soon after my arrival smart pains came on, the breech was pushed down, and the child expelled double in the usual manner. Before there was time to divide the *funis*, the *placenta* followed, and no sign of life appearing, both child and after-birth were thrown into a corner of the apartment. Happening, however, in some time afterwards to look at it, we found to our great surprise that the heart was pulsating. Measures were, of course, instantly resorted to for the purpose of restoring animation, and life was prolonged for about twenty-four hours. It is needless to make any comment upon the necessity of attention to the appearances of a new-born infant, and of perseverance in our attempts at resuscitation, so forcibly inculcated by this singular lesson.

The two instances in which the *placenta* presented were both remarkable. In one, the woman was in the eighth month of pregnancy, she was of delicate appearance, and had aborted twice. About five weeks before her application at the institution, she had a smart hemorrhage, which she attributed to a fit of crying. While engaged at her work, which obliged her to observe a standing posture, she had subsequently frequent slighter returns of bleeding. On the evening of the 24th May, when she first applied at the institution, a considerable discharge of blood took place, which lasted for more than an hour. She was then hot, with a quick pulse, and without the slightest uterine pain. The vagina was excessively tender, so much so, that it was with difficulty she could be prevailed upon to submit to an examination. The *os uteri* could not be felt. Perfect rest was enjoined,—cold applied to the *vulva* and lower part of abdomen, and the red acid mixture administered.

By these means the hemorrhage was entirely restrained for some hours, until, upon making a slight exertion, a large mass of coagula came suddenly away, attended with slight pains in the back. Immediately after this the pulse became weak and accelerated to 130, and she sank rapidly, although scarcely any discharge took place during the following day and night of the 25th. On the morning of the 26th, a very slight return of hemorrhage occurred, and was soon followed by death.

Examination was obtained, and disclosed the child placed in the natural position, surrounded with scarcely a pint of *liquor amnii.* The centre of the *placenta* was attached over the *os uteri,* and presented a laceration of slight extent, such as might be produced by something being thrust into its substance through the mouth of the womb. This opening was itself very slightly dilated, and the vagina contracted to a considerable extent.

I confess that I entertain much doubt as to what should have been the practice in this case. The extraordinary tenderness and rigidity of the vagina, which was so great as very much to embarrass an ordinary examination, together with the extreme irritability of the patient, deterred us from any attempt at introduction of the hand; and as the bleeding was but trifling after the period of her application, the same circumstances prevented us from employing the plug. Were a similar case to occur to me now, I should be much inclined to adopt the latter measure, as, from a case which lately came within my notice, I am disposed to think that the plug acts beneficially, both by restraining the hemorrhage for a time, and also by exciting in the *os tincæ* a disposition to dilate.

The second instance of placental presentation had a more favourable result. Sarah Duncan, æt. 24, was visited by Mr Morton, one of the pupils of the Institution He found the *os uteri* fully dilated, and the water evacuated. An edge of the placenta presented with one foot between it and the margin of the *os uteri*. Through the substance of the placenta could be felt a solid resisting body, which afterwards proved to be the other foot. Pains succeeded so quickly, that Mr Morton had not time to send for assistance to the Institution; and almost immediately after his arrival, the foot which he had felt above the placenta was driven through it with a considerable gush of blood, not a drop having been lost before. Another pain quickly succeeded, and the placenta was entirely expelled, with the limb passed through its substance. The breech then filled up the *os uteri*, and there was no farther hemorrhage until the complete expulsion of the child, which was born alive, but very shortly afterwards expired.

The twin cases had little remarkable. In one, which was premature, there was an acephalous fœtus; in another, five hours elapsed between the two births. In this case, the membranes of the second child were ruptured, and ergot of rye administered.

The three cases in which any thing like severe *hemorrhage* occurred, did very well under the employment of external pressure and friction over the uterus, the introduction of the hand not being required in any of them. In one of these cases, the hemorrhage came on three hours after delivery, the placenta having been naturally expelled, and the uterus well contracted. One case of *hydatids* was met with during the year. The patient was a woman of the town, æt. 28. She applied at the Institution on the 21st December, on account of a hemorrhage to which she had occasionally been subject during nine weeks previously. She supposed herself to be three months pregnant. Shortly after she was visited, labour pains came on, and upwards of a pint of hydatids, enveloped in a membrane, and having attached to them something like a degenerated placenta, were expelled.

Three cases are noted in which a species of *menstruation* occurred during pregnancy. In one, a discharge of blood, which the woman could not distinguish from the menses, took place regularly every twenty-eight days. She was thirty-six years old, and had borne children before; but nothing satisfactory could be learned as to the state of the function during her former pregnancies.

An instance of early discharge of the waters came within our notice. A woman was sensible of the breaking of the membranes during a violent fit of coughing on December 15th, a rush of waters followed, and continued dribbling until December 23d, when labour set in, and in four hours a living child was born.

Only four deaths of mothers are recorded during the year. Two of these have been already noticed. Of the other two, one was from apoplexy, under the following circumstances.

A young woman, who, we had reason to believe, was unmarried, and the subject of considerable mental depression, was taken in labour of her first child. The pains were rather severe, and she was safely delivered in less than twelve hours. Towards the latter period of the labour, she complained a good deal of pain in the head, but, when it was completed, inquired respecting the sex of the child, &c. and shortly afterwards fell asleep. In two or three hours from this time, her friends observed that she was breathing stertorously, and that they could not awaken her. She was bled, but without any effect, and died after a few hours. An examination was made, and both ventricles of the brain found distended with coagulated blood. A large quantity of serum was also effused into the base of the scull; the ruptured vessel could not be traced.

The fourth fatal case was from cholera, and was remarkable as being the only decided one which we met with in a parturient patient, notwithstanding the sufferings of the city from that pestilence, during the whole summer and autumn. It was the patient's eighth labour, and her husband had been carried off by cholera four or five days previously. Cramps and vomiting occurred during the expulsion of the child, which was completed in about eight hours; she then immediately began to sink. No uterine effort for the expulsion of the after-birth took place; her extremities became cold and blue, and she died in about four hours after delivery. The child was born dead. The evolution of heat after death, which has been remarked in cholera, was very striking from the body of this patient.

The *ergot of rye* was frequently used, and when sufficiently fresh was almost invariably found to produce uterine action. Several examples in illustration are noted, but as they would be only repetitions of what has been already published on the subject, it is unnecessary to detail them. The mode of administration which we generally adopted was an infusion of half a drachm of the powder in a tea-cupfull of boiling water, given with a little milk, and about a third of the infused powder.

Upon two points connected with the circulation of pregnant women, I attempted some investigations. In the first place, I was anxious to ascertain whether or not physiologists are correct in stating that the blood during gestation uniformly presents a buffed appearance. Every opportunity which presented of examining the blood of *healthy* pregnant women was accordingly embraced, and although my observations were not sufficiently numerous to warrant me in affirming positively that the circumstance mentioned does not usually take place in health, still I have seen enough to enable me to state that buffing is very far from being a usual occurrence.

The other point related the state of the pulse during the period of gestation. Among forty-eight healthy women taken indiscriminately, mostly in the eighth or ninth month of pregnancy, the pulse was in thirty-two of them above 100, in many 120, and in one 144. This extraordinary rapidity, of course, evinces considerable excitement in the circulating system. It has also, I think, a practical bearing worthy of being attended to. We are told by some gentlemen, in whom, I fear, a very praiseworthy enthusiasm has been the means of sharpening to an unusual degree a natural sense, that we have in the stethoscope a certain means of ascertaining the death of a fœtus during labour, and so of being guided to the proper moment for the performance of necessary operations. As it is universally admitted that the placental soufflet is not sufficient evidence of fœtal life, we have only left for our information the pulsations of the fœtal heart. To distinguish this from the various pulses that may be heard in the abdomen of the mother, it is said that we have merely to listen to the double beat of the fœtal organ, and that we can also count its pulsations, and ascertain them to be double in number those of the vessels of the mother. Now, I should be glad to know what ear, except that of the imagination, could make observations upon, or, indeed, even hear the feeble sounds of a heart *in utero*, beating at the rate of 288 strokes in a minute? Yet, one of the

48 healthy women whom I examined had a pulse at 144; and consequently, if it be meant that the fœtal pulsations are double the actual number of the mother's, they must in this case have reached the incredible amount stated. If, however, it is to be understood that the child's heart beats only twice as frequently as the mother's ordinarily does, we would have in this instance the sounds of the abdominal arteries equal in number, and liable to be confounded with those issuing from the chest of the fœtus.

In making these remarks, I would wish to be distinctly understood as in no way undervaluing auscultation in midwifery practice. In many instances, it affords most valuable aid in investigations into the condition of the uterus. I think, however, that very serious practical errors would be committed, were practitioners to adopt or act upon the notion, that in difficult labour, the death of the child can always be positively ascertained by the employment of the stethoscope; and, as this view has been frequently advanced, it will probably not be without advantage to consider the matter a little more fully.

In addition to the sources of confusion already indicated, it is to be recollected that instances occur, and are acknowledged, in which the most expert stethoscopists cannot hear the fœtal heart at all. The answer given to this is, that, if you have once heard the pulsations, and afterwards lose them during labour, the sure and irrefragable conclusion is, that the child has ceased to exist. In opposition to such a conclusion, I have only to declare, that I have frequently heard the sound in question; and, after the lapse of a few hours, or even upon the change of the woman's position, have completely lost it; and, upon another alteration of circumstances, heard it as distinctly as at first.

Where such uncertainty exists, and that it does exist, I apprehend few practical men will deny, it appears to me much better when we are able to decide upon the propriety of a destructive operation, altogether to dismiss the stethoscope from our counsels, and to fix our attention upon the state of the mother, which we have the paramount authority of Denman for looking to, as our only safe and warrantable guide. By adopting such a line of conduct, it is not likely that we shall very often risk the woman's safety by unnecessary delay; while on the other hand, were a young practitioner to make auscultation his sole or even chief guide, it is all but unavoidable, that, in one case, a real or fancied cessation of the heart's action would lead him to an unrequired and too hasty interference; while in another, scruples kept awake by stethoscopic evidence of fœtal existence, would induce him to postpone his operation until the destruction of the child would not be rewarded by the safety of the mother.

ART. V.—*On the Occurrence of Supernumerary Cervical Ribs in the Human Body.* By ARCHIBALD DYMOCK, M. D.

THE following curious instance of supernumerary or cervical ribs in the human body, accidentally fell into my hands whilst prosecuting my anatomical studies in the year 1830. At that time I felt inclined to regard it as very rare, if not altogether unrivalled, inasmuch as my attention had not previously been directed to any analogous case. Since then, however, I have ascertained that several similar cases are noticed by Continental authors; and more lately, I have been informed that preparations of this kind may be seen in one or two anatomical collections in this country. These cases I shall briefly state in a subsequent part of this paper, as a few of them exhibit a considerably greater development than the specimen now before me.

Regarding the present case we may observe, that it occurred in the body of a male apparently about twenty-eight years of age, of full growth and remarkably good proportions, none of the other organs showing any deviation from their normal state. Unfortunately, the putrefactive process had advanced so far before the peculiarity was detected, that we were prevented from investigating the relation of the adjacent soft textures. The present description, accordingly, must be limited to a detail of the appearances presented by the bones themselves.*

On either side of the seventh cervical *vertebra* is placed an oblong bony process, which is articulated to the former at two points,—namely, at the upper and lateral part of the *body*, and at the external or free extremity of the *transverse process.* These bony processes run in a curved direction outwards and forwards, immediately above, and almost parallel with, the first pair of true ribs, their course only varying from that of the latter, in so far as it describes a portion of a circle of smaller diameter. Of these bones, that on the left side is the larger, its length being nearly three inches, (See Plate I. fig. 2 and 3, *a.*) —that of its fellow only an inch and a-half, (fig. 2 and 3, *b.*) Their vertebral extremity possesses more strength and thickness than their anterior; and their body assumes a rounded and slightly twisted form, being almost entirely deprived of that flattened configuration which constitutes a characteristic feature of the dorsal ribs. (Fig. 2d. Plate I.)

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* In the *Mémoires présentés à l'Académie des Sciences*, I find these observations by M. Sue. In cases of supernumerary cervical ribs the chest is rendered more capacious in its vertical diameter,—the sacro-lumbar, and other long muscles of the back, have an additional tendon,—the large vessels arising from the heart are longer, in consequence of that organ remaining in its natural position,—and there are two additional sets of intercostal arteries and muscles.

Each of these rudimentary ribs is furnished with a tuberosity and head, which are connected to the *vertebra prominens* exactly in the same manner as the corresponding points of the regular ribs are articulated to their respective dorsal *vertebræ*,—namely, by ligaments and synovial membrane. Betwixt the tuberosity and head there is a prominent line or ridge, directed obliquely downwards and outwards; and on the inner side of this is placed a groove, alongst which the vertebral artery passes before entering the hole in the transverse process of the sixth *vertebra* of the neck. Anteriorly these processes terminate rather abruptly, and without any cartilaginous prolongation; that on the left side being somewhat increased in size, and connected to the following rib by a strong fasciculus of tendinous fibres.

With regard to the *vertebra prominens*, it may be proper to notice that its *body* is unusually deep, approximating very closely in point of size to that of the first dorsal; besides which, it presents one complete costal impression, and a demi-facette on each side. Moreover, the *foramen* generally found in its transverse process (and which Meckel affirms never affords passage to more than a branch of the vertebral vein,) is here absent,—an omission that offers another point of resemblance in addition to those above-mentioned, which the seventh cervical vertebra has to the dorsal.

From a glance at the preceding facts, I think we can have little difficulty in considering these processes of bone as the rudiments of ribs, no doubt rarely developed to such a magnitude, but not on that account rendering our conclusion less satisfactory or more open to fallacy. And in corroboration of this opinion, we need only adduce these two arguments. *First*, that precisely similar cases have been recorded; and *secondly*, that such apparently anomalous cases are not only not inconsistent, but are actually in perfect unison with those laws of organization which nature follows in the construction of animal bodies. Before explaining these laws, however, I shall shortly enumerate a few cases which have been mentioned by writers.

Most systematic authors on anatomy notice an occasional increase or diminution in the number of the ribs, but there are comparatively few who have met with such deviations themselves, and still fewer who have given any thing like a minute account of what fell under their observation. Accordingly we find that Galen, Columbus, Ruysch, Valverda, Riolan, Fallopius, Piccolomini, Winslow, and others, have each seen cases, but they have forgotten to favour us with the details, and we are ignorant whether these supernumerary ribs were met with in the cervical or lumbar regions.

Amongst the few who have been more exact, may be placed first M. Hunauld, who published a paper upon this subject in the volume of the *Mémoires de l'Academie Royale des Sciences* for 1740. To this paper he has appended four delineations, in one of which the additional rib is represented as reaching the *sternum.* Professor Otto of Breslau has also alluded to the occurrence of ribs in connection with the seventh cervical *vertebra*, and mentions in his *Anatomie Pathologischen* that two specimens are preserved in the Museum there. He saw a third in the Museum at Christiania in the skeleton of an adult; on one side, the rib extended as far as the breast-bone, on the other, only to the middle of the first true rib. The Professor likewise notices a fourth case in the collection of the Josephine Academy of Vienna. In the *Deutsches Archiv für die Physiologie*, Meckel records another example, which is chiefly remarkable from a synovial apparatus developed at its anterior extremity. It were needless, however, to enumerate more, as the preceding cases are in themselves amply sufficient to establish that the explanation of such anomalous developments is not to be found in some merely fortuitous deviation on the part of nature, but must be sought for in those uniform and perfect laws which regulate all her operations in the formation of organized beings.

Conformably with the foregoing opinion, we require to examine the osteogeny of the cervical vertebræ, before obtaining a satisfactory explanation; and this fact, to the best of my knowledge, was first discovered by M. Hunauld, and afterwards described by him in the Memoir before referred to. It has since been confirmed by other physiologists, more particularly by Beclard and Meckel, whose observations have demonstrated that the *vertebra prominens* has invariably two points of ossification in addition to those met with in the other vertebræ of the neck. They are placed one on each side in a transverse direction before the pedicle which connects the lateral processes to the body. They are said to be visible so early as the second month of uterine life, and at the third and a-half to be a couple of lines in length. Towards the fifth or sixth year, the internal extremity of each horizontal bony nucleus unites itself to the anterior part of the pedicle, and lateral part of the body of the vertebra; the external extremity unites itself simply to the summit of the transverse process. (See *Mém. sur l'Osteose*, by Beclard, in the *Nouveau Journal de Méd.*) Such is the ordinary method of development observed in the *vertebra prominens.*

In cases where rudimentary ribs are formed upon this vertebra, there is no difference whatever in the order or nature of the phenomena narrated above, unless that these are carried on with more activity. The external extremity of the horizontal plate of bone, instead of terminating at the summit of the transverse process, passes beyond it, and we have either a complete cervical rib extending to the sternum, or one more imperfect, which ends at some intermediate point,—a variation probably produced and dependant upon the presence or absence of additional intercostal arteries. It remains to be observed, that the supernumerary ribs are seldom exactly alike, there being sometimes only one; at other times, and more frequently, one much farther developed than its fellow. Farther, supernumerary cervical ribs have never been met except in connection with the *vertebra prominens*,—a circumstance that might have been anticipated from a knowledge of the facts we have just stated.

I shall now shortly consider two important physiological points, which the preceding cases appear to illustrate. In the *first* place, they establish a closer analogy between the skeleton of the MAMMALIA and other vertebrated animals; the superior ribs in certain birds and reptiles and in the cetacea, being unquestionably imitated by the rudimentary ones found in the cervical region of the human body. And, *secondly*, they afford a favourable confirmation in support of the theory of unity of organization, of late so ably maintained by Meckel and Geoffroy Saint Hilaire; adding another proof that the embryotic state of man and the superior animals presents a constant but transitory repetition of structure, which remains permanent in the inferior classes.

Of the practical importance of these cases it is almost unnecessary to speak. In tying the subclavian artery, such a conformation might occasion some embarrassment, but the extreme rarity of an occurrence of this kind renders any farther remarks superfluous.

ART. VI.—*Contribution to Statistics of the Army.* By HENRY MARSHALL, Esq. Deputy Inspector-General of Army Hospitals.

No. II.

THE leading object of these contributions is to collect facts for the investigation of the mean ratio of the number of the sick of the British army in different stations, the ratio of deaths, and the ratio of the decrement of the army by invaliding. I am well aware, that facts are chiefly of importance from their arrangement and the purpose to which they are applied. Facts, like the materials of a building, may, however, be collected by one person, and the edifice be erected by another. "A correct return of the sick of armies or other classes of the community, continued through a series of years, cannot be otherwise regarded than as documents of importance. They not only afford to physicians information on the subject of health and disease, and relative mortality among diseases, but they supply very valuable and accurate materials for enabling statesmen and general officers to form accurate calculations, whether relating to productive domestic labour, or destructive foreign war." (*Dr Robert Jackson.*)

The statistics of the relative frequency and fatality of particular diseases in the army, is a distinct and a highly important branch of this subject, which deserves a very full consideration. Statistical tables, which are constructed upon an extensive scale, are eminently calculated to illustrate many important circumstances connected with the prevalence of diseases and the health concerns of an army. Generally speaking, accurate records of the progressive increase or diminution of the ratio of mortality throughout the army serving in the different stations at home and abroad, would alone be of great utility for political purposes, but, as I have before observed, statistical records are comparatively of little use unless they are simple and uniform in their construction.

Stations of the British Army.

Usual Distribution of Troops of the Line.

		Cavalry Regts.	Infantry Regts.	Depots.
HOME STATIONS.	1. Great Britain, -	14	14	27
	2. Ireland, - - -	8	20	19
FOREIGN STATIONS.	1. India, - - -	4	20	
	2. Ceylon, - - -		4	
	3. Mauritius, - -		4	
	4. Gibraltar, - -		5	
	5. Malta, - - -		4	
	6. Ionian Islands, -		6	
	7. Windward and Leeward Islands,		11	
	8. Jamaica & Honduras,		5	
	9. North America,		8	
	10. Africa, (W. Coast,)			
	11. Cape of Good Hope,		3	
	12. New South Wales,		3	

HOME STATIONS.

Great Britain.—Scotland.

Return of the mean strength of the troops employed in Scotland from the years 1816 to 1822, inclusive, the proportion of sick per cent., the number of deaths, and the proportion of mortality per cent. of the mean strength.

	Mean Strength.	Average proportion of sick.	No. of deaths.	Proportion of deaths.
1816,	2591	4.7	38	1.4
1817,	3143	3.2	19	6
1818,	2939	3.5	19	61
1819,	2714	3	33	1.2
1820,	4853	3.3	61	1.2
1821,	2903	3.5	39	1.3
1822,	1680	4.4	21	1.2
Mean of 7 years,	2975	3.6	33	1.1

Foreign Stations.—India. I.

Return of the strength of His Majesty's forces serving in Bengal, the number of deaths, and the proportion of decrement by death per cent., the number invalided, the proportion per cent. invalided, and the stations where the troops were quartered, from the 21st December 1825, to the 20th December 1826.*

Corps.	Strength.	Died.	Ratio per cent. by death.	Invalided.	Ratio per cent. of men invalided.	Tot. decre. by death and invaliding.	Stations.
11th Drag.,	567	39	6.5	11			Cawnpore.
16th Do.,	644	15	2.3	16			Meerut.
13th Reg.,	600	82	13.6	1			Dinapore.
14th Do.,	972	49	5	66			Riv. Ganges.
31st Do.,	871	111	12.7	9			Meerut.
38th Do.,	527	76	14.4	5			Cawnpore.
44th Do.,	619	51	8.2	99			Ghazeepore.
47th Do.,	650	104	16	58			Fort Wil.
59th Do.,	823	54	6.5	40			Burhampore.
87th Do.,	620	107	17.2	74			Fort Wil.
Detach. of His Majesty's Reg. from Europe,	1083	86	7.9	1			Chinsurah.
Mean of 1 year,	7976	774	9.7	379	4.7	14.5	

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* Vide Dr Burke's General Abstract of the Annual Return of the Sick of His Majesty's Forces serving in the Presidency of Bengal for the year 1826.—(Annesley's Researches on the Diseases of India.)

These troops had in general been actively employed in 1825, either in the Burmese territory or at the reduction of Burtpore. Some mistake has crept into the report of the mortality of the 13th regiment; for, instead of 82 deaths, the number stated, 88 men died at the head quarters of that corps in 1826, and 46 not at head quarters, making altogether a decrement of 134 by death, or 20.8 per cent.

Return of the effective strength of the European branch of the Madras army, the number of deaths, the number discharged or invalided, and the ratio of decrement by deaths, &c. per cent. per annum, from the year 1815 till the year 1821 inclusive. *

	Effective strength.	Died.	Rate per cent of deaths.	Discharged or Invalided.	Rate per cent. discharged, &c.	Tot. decrement by death and disabilities.
1815,	13641	722	5.3	528		
1816,	13526	582	4.3	477		
1817,	13131	771	5.8	529		
1818,	13129	1269	9.6	490		
1819,	13376	963	7.2	527		
1820,	10816	635	5.8	482		
1821,	10527	618	5.8	277		
Mn. of 7 yrs.	12592	794	6.3	486	3.7	10.1

The strength of this return is much too high, inasmuch as it comprehends the actual strength of corps on the 1st January each year, and the number of recruits and transfers that joined during the year. The ratio of deaths will therefore be considerably lower than it ought to be, as the conclusions should be drawn from the mean strength, not the highest strength. In this instance, however, the strength stated in Mr Annesley's returns are higher even than the highest strength during the year.

I am unable to collect from Mr Annesley's documents the mean ratio of sick in the European branch of the Madras army during the period embraced in his returns. He states, and I have no doubt with great accuracy, the number of men admitted into hospital, and the number discharged, or, as he denominates this class, " cured," but these data are not adequate for deducing the average number of men unfit for duty. This important fact may be easily ascertained by dividing the number of diets in an hospital during a month by the number of days of the month.

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* Vide Annesley's Sketches of the Diseases of India.

Although Mr Annesley's tables do not afford the requisite data for deducing the mean ratio of sick in the Madras army, he states in the text of his work that the general ratio of sickness in European regiments, unless under very extraordinary circumstances, or during a very sickly period, is seldom above 10 per cent.; this rate is termed healthy, and any thing above it is considered sickly.

A knowledge of the mean ratio of sick may be made available by a commanding officer to estimate the proportion of duty-men he may reckon upon, as also the extent of hospital accommodation, and the number of medical officers that may be required.

Return of the mean strength of the 17th Dragoons, the mean annual number of deaths, the proportion of deaths per cent. per annum, from 1809 to 1822 inclusive.

Period.	Strength.	No. of deaths.	Proportion of deaths.	Stations.
Mean of 14 years,	730	57	7.8	Bombay presidency chiefly in Kairah.

Return of the strength of the 13th Light Infantry, the number of deaths, the proportion of mortality per cent. of the strength and the stations where the regiment was employed from May 1823, when the corps landed in India, till the 31st December 1829.

	Strength.	Deaths.	Prop. of deaths per cent.	Where employed.
1823,	828	48	5.7	Calcutta.
1824,	770	338	43.8	Rangoon.
1825,	409	151	36 9	Ditto.
1826,	643	134	20.8	Burhampore and Dinapore.
1827,	990	60	6.	Dinapore.
1828,	888	96	10.8	Ditto.
1829,	823	109	13.2	Ditto.
Mean of 7 yrs.	764	133	19.6	

Return of the mean strength of the 34th Regiment, the number of deaths, the proportion of deaths per cent., and the stations where it was employed, from January 1803, till January 1823.

	Strength.	Deaths.	Prop. of deaths per ct.	Where employed.
1803,	1070	32	3.	At sea & Ft. St Geo., Madras.
1804,	1062	88	8.3	Fort St George.
1805,	1090	52	4.7	Wallajabad.
1806,	1053	120	11.3	Gooty.
1807,	1041	96	9.2	Ditto.
1808,	1007	34	3.2	Ditto.
1809,	883	26	2.9	Ditto and Bellary.
1810,	851	115	13.5	On field service.
1811,	823	170	20.6	Camp at Jaulnah.
1812,	756	35	4.6	Secunderabad.
1813,	728	64	8.7	Ditto.
1814,	706	39	5.3	Ditto.
1815,	803	119	14.8	Seringapatam.
1816,	927	42	4.5	Vellore.
1817,	872	61	7.	Ditto.
1818,	915	138	15.	Ditto and on field service.
1819,	579	33	3.8	Bengalore.
1820,	853	34	4.	Ditto.
1821,	820	43	5.2	Fort St George.
1822,	768	42	5.4	Ditto.
Mean of 20 yrs.	895	69	7.7	

Return of the mean strength of the 45th regiment, the number of deaths, and the proportion of decrement by death per cent. the number invalided, the ratio per cent. invalided, and the stations where the corps was employed from 1819 to 1830 inclusive.

	Strength.	Died.	Ratio of decrement by death per cent.	Invalided.	Ratio of decrement by invaliding per cent.	Total decrement by death and invaliding per cent.	Stations.
1819,	699	21	3.				On board ship, Colombo, Ceylon.
1820,	689	38	5.5				Kandyan Provinces.
1821,	710	24	3.4	6			Trincomalee.
1822,	692	46	6.6	30			Colombo.
1823,	630	26	4.1	45			Colombo.
1824,	565	103	18.2	35			Do. and Kandy.
1825,	512	95	18.5	25			Kandy, Madras.
1826,	574	180	31.3	16			Madras, Rangoon.
1827,	922	120	13.	16			Rangoon, Martaban
1828,	918	40	4.3	39			Moulmeyn.
1829,	1004	38	3.7	42			Do.
1830,	939	26	2.7	15			Do.
Mn. of 12 *yrs.*	738	63	8.5	22	3	11.5	

In this return, I have not considered it necessary to separate the service of the regiment in Ceylon from the period of its belonging to the establishment of the Honourable the East India Company.

Ages of the Fatal Cases.

Ages.	1819.	1820.	1821.	1822.	1823.	1824.	1825.	1826.	1827.	1828.	1829.	1830.	Total.	Relative prop. of deaths in each period.	Relative prop. of deaths in each year of a period
From 18 to 20,	3	3	,,	1	,,	5	15	73	62	2	,,	,,	164	21.6	10.8
—— 20 to 22,	3	8	9	3	2	6	3	12	15	7	5	2	75	10.	5.
—— 22 to 24,	2	6	4	7	6	7	4	13	8	4	12	4	77	10.1	5.
—— 25 to 30,	3	6	5	23	13	44	35	48	17	10	5	4	213	28.2	5.6
—— 30 to 35,	10	10	4	7	3	30	29	22	13	12	11	12	163	21.5	5.3
—— 35 to 45,	,,	5	2	5	2	11	9	12	5	5	5	4	65	8.6	.8
	21	38	24	46	26	103	95	180	120	40	38	26	757	100.0	

By this table, it appears that 21.6 per cent. of the whole number of deaths occurred among men under twenty years of age; and that, while the ratio of deaths in each year of age under twenty was 10.8, it was not higher at any other time of life than 5.6. Six and one-half men died in each year of age, from thirty-five to forty-five; while eighty-two died in each year of age, from eighteen to twenty. The conclusion is obvious; namely, that men who have reached the prime of life are much better able to endure the fatigue and privations of a military life, than youths who have not attained twenty years of age. The mortality which occurred in 1826 and 1827, was supposed to have been increased on account of bad accommodation and innutritious diet. The barracks were only temporary huts, constructed of bamboos, and not water-proof. The rations consisted of biscuit, which was generally mouldy from the excessive moisture of the climate, salt beef or pork for four days, and buffalo beef for the other three days of the week. Many of the men were affected with scurvy, which disease was also often combined with dysentery. The barrack accommodation was rendered more comfortable by 1828; and the diet of the men was also greatly improved.

Return of the mean strength of the 65th Regiment, the number of deaths, the proportion of deaths per cent. the number invalided, and the ratio per cent. invalided during the period this regiment belonged to the Honourable East India Company's establishment, or from 1801 till 1822 inclusive.

Period.	Strength.	Deaths.	Ratio of Deaths.	Invalided.	Ratio of men invalided.	Total decrement by deaths and invaliding per cent.
Mean of 22 years.	971	64	6.5	18	1.8	8.4

Return of the mean strength of the 69th Regiment, the number of deaths, distinguishing the deaths by disease from those that happened in the field, the proportion of deaths per cent. by disease to the whole number; as also the stations where the regiment was employed, from the 1st August 1805, to the 1st January 1820.

	Mean Strength	Killed.	Died by disease	Prop. of deaths per cent. by disease to the mean strength.	Where employed.
1805,*	987	,,	62	6.2	Poonamalee, Wallajabad, Vellore.
1806,	872	80	67	7.6	Vellore and Fort St George.
1807,	724	,,	71	9.8	Trichinopoly.
1808,	729	,,	62	8.5	Do.
1809,	803	,,	89	11.0	Do. and Fort St George.
1810,	788	5	36	4.5	Fort St Geo. at sea, Isle of Bourbon.
1811,	811	14	155	19.1	Madras, Island of Java.
1812,	812	,,	90	11.	The Isle of Goa.
1813,	848	,,	74	8.7	Do. Do. and Seringapatam.
1814,	813	,,	58	7.1	Seringapatam and Bellary.
1815,	785	,,	37	4.7	Bellary.
1816,	745	,,	37	4.9	Ghooty and Bangalore.
1817,	937	,,	38	4.	Bangalore.
1818,	971	,,	84	8.6	Do.
1819,	1037	,,	65	6.	Cannanore.
Mean	——	—	—	—	
15 yrs.	844		68	8.5	

Return of the mean strength of the 1st Battalion of the 78th Regiment, the number of deaths, the proportion of deaths by disease per cent. per annum, and an account of the stations where the corps were employed, from its arrival in India (16th February 1797,) till the 24th December 1815.

	Mean Strength.	Killed in the field.	Died by disease.	Propor. of deaths by disease per cent.	Where employed.
1797,	1149	,,	115	10.0	Fort Wm. & Burhampore
1798,	1010	,,	79	7.8	Allahabad & Cawnpore.
1799,	974	,,	58	5.9	Cawnpore & Fort Wm.
1800,	950	,,	53	5.5	Fort William.
1801,	951	,,	45	4.6	Do.
1802,	940	,,	78	8.3	Do.

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* From 1st August to 31st December.

1803,	857	47	119	13.8	In the field.
1804,	744	,,	145	19.4	Bombay.
1805,	694	,,	80	11.5	Do.
1806,	749	,,	38	5.0	Do.
1807,	677	,,	24	3.2	Island of Goa.
1808,	781	,,	34	4.3	Do.
1809,	825	,,	54	6.5	Do.
1810,	1064	,,	43	4.0	Do.
1811,	941	28	184	19.5	At sea and in Java.
1812,	748	6	192	25.6	Java.
1813,	699	,,	81	11.7	Do.
1814,	684	,,	80	11.6	Do.
1815,	644	,,	33	5.1	Do.
Mean of 19 yrs.	846		96	11.3	

Whenever my materials enabled me to separate the number of men who were killed in action from casualties by disease, I have done so, for the purpose of rendering the circumstances of corps as similar as possible, and thereby easily compared.

2. CEYLON.

Return of the mean strength of the 19th Regiment of Foot, the number of deaths, the proportion of deaths per cent. the numbers invalided, and the proportion per cent. invalided, from the 28th April 1796, till December 1819.

	Strength.	No. of deaths.	Propor. per cent. of deaths.	Invalided.	Proportion per cent. Invalided.	Total decrement by death and invaliding.	Where employed.
1796,	1035	20	1.9	,,	,,	,,	At sea, Cape G. Hope, and Colombo.
1797,	1030	46	4.4	,,	,,	,,	Colombo, Ceylon.
1798,	1002	26	2.5	22	,,	,,	Colombo.
1799,	941	90	9.5	2	,,	,,	Colombo, and on service in India.
1800,	882	72	8.1	13	,,	,,	Trincomalee.
1801,	854	39	4.6	,,	,,	,,	Do.
1802,	905	46	5.	21	,,	,,	Do.
1803,	843	338	40.	,,	,,	,,	Kandy and Trincom.
1804,	642	128	19.9	12	,,	,,	Trincomalee.
1805,	528	44	8.3	27	,,	,,	Do.
1806,	451	12	2.6	12	,,	,,	Colombo.
1807,	793	20	2.5	7	,,	,,	Do.
1808,	828	17	2.	9	,,	,,	Do.
1809,	796	45	5.6	42	,,	,,	Peninsula of India.

1810,	776	39	5.	29	,,	,,	Colombo.
1811,	729	17	2.3	15	,,	,,	Do.
1812,	785	14	1.7	27	,,	,,	Do.
1813,	938	20	2.1	11	,,	,,	Do.
1814,	910	67	7.3	45	,,	,,	Trincomalee.
1815,	1142	114	9.9	63	,,	,,	Do.
1816,	1019	38	3.7	60	,,	,,	Do.
1817,	930	91	9.7	57	,,	,,	Do.
1818,	748	114	15.2	26	,,	,,	Kandyan Provinces.
1819,	598	41	6.8	57	,,	,,	Do. and Galle.
Mean 24 yrs.	837	62	7.4	24	2.8	10.2	

The statement of the number of deaths in the year 1803, includes a number of men who were massacred at Kandy in that year. The exact number of casualties which occurred by this means is unknown. It will appear by this return, that the mean ratio of mortality among troops is much higher at Trincomalee than it is at Colombo, although the causes of the difference are not very obvious.

Return of the mean strength of the 73d Regiment, the number of deaths, the ratio of decrement by death per cent., the number invalided, the ratio of loss by invaliding per cent., and the total decrement by death and invaliding, from the 1st January 1818, to the 31st December 1820.

	Strength.	Died.	Ratio of decrement by death.	Invalided.	Ratio of loss by invaliding.	Total loss by death & invaliding.	Where employed.
1818,	864	356	41.2	,,	,,	,,	Kandyan Provinces.
1819,	566	160	28.2	53	,,	,,	Kandy, Trincomalee.
1820,	533	38	7.1	52	,,	,,	Trincomalee, Galle.
Mean 3 yrs.	654	184	28.1	35	5.3	33.4	

This is a very high ratio of decrement in a corps by death and invaliding. As I served with the 73d Regiment during the above period, I had a good opportunity of obtaining exact returns; and therefore I feel confident that the conclusions are quite correct. For the satisfaction, however, of my readers, I have subjoined a monthly abstract of the strength of the 73d Regiment, and the deaths which occurred in the corps during the years 1818, 1819, and 1820.

	1818.		1819.		1820.	
	Strength.	Died.	Strength.	Died.	Strength.	Died.
January,	996	3	609	7	614	3
February,	989	9	577	10	548	4
March,	984	4	570	6	544	3
April,	973	11	542	27	539	4
May,	947	34	518	19	536	3
June,	916	31	496	23	517	2
July,	899	17	490	19	516	1
August,	860	35	474	14	511	5
September,	776	86	606	5	508	3
October,	706	68	634	10	500	
November,	683	21	630	7	536	6
December,	647	34	617	13	532	4
		356		160		38

The very high ratio of mortality which took place in 1818 may, in a great measure, be attributed to excessive fatigue during the insurrection of the Kandyans, scanty and innutritious diet, great exposure to variations of temperature and inclemencies of weather, and insalubrious stations. A small portion only of the mortality of the regiment was occasioned by instruments of war. Of the different classes of troops employed, only fifty-eight men were killed on the field in 1818.

Return of the mean strength of the 83d Regiment, the number of deaths, the proportion of deaths per cent., the number invalided, &c. from the 1st January 1818, to the 31st December 1820.

	Strength.	Died.	Ratio of Deaths.	Invalided.	Ratio per cent invalided.	Total decrement by death and Invaliding.	Where employed.
1818,	980	123	12.5	2			Chiefly in interior of Ceylon.
1819,	843	85	10.	46			
1820,	792	27	3.4	116			
Mean of 3 years,	871	78	8.9	55	6.3	15.2	

3. MAURITIUS.

Return of the mean strength of the 82d Regiment, the number of deaths, and the proportion of decrement by deaths per cent. per annum, the number invalided, and the ratio per cent. invalided, from the year 1820 to the year 1831 inclusive, during which period this corps was employed in the Mauritius.

	Strength.	Died.	Ratio of deaths.	Invalided.	Ratio of men Invalided.	Total decrement by death and Invaliding.
1820,	635	40*		27		
1821,	641	32				
1822,	590	23		33		
1823,	552	16		25		
1824,	532	14		32		
1825,	515	8		19		
1826,	513	18		20		
1827,	471	9		12		
1828,	500	21		45		
1829,	478	20		18		
1830,	492	23		31		
1831,	490	6		29		
Mean of 12 years,	534	20	3.7	24	4.5	8.2

7. WINDWARD AND LEEWARD ISLANDS.

Return of the annual ratio of mortality which occurred among the European Troops and African Corps employed in the Windward and Leeward Islands, and British Colonies on the coast of America, from the year 1803, till the year 1814 inclusive.

	Ratio of mortality per cent. per annum.	
	Europeans.	Africans.
1803,	11.1	2.7
1804,	20.	4.
1805,	20.	6.
1806,	11.1	4.5
1807,	9.7	6.
1808,	16.6	3.7
1809,	14.2	4.3
1810,	20.5	5.2
1811,	12.5	6.
1812,	8.2	4.5
1813,	6.8	5.2
1814,	6.	4.3
Mean of 12 years,	13.1	4.7

The data from which this return is compiled, will be found in a paper published by Dr Robert Jackson in the 1st Volume of the Transactions of the Medical Society of London.

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* Including fourteen deaths from cholera. During the above period fourteen men were drowned, and seven committed suicide.

Abstract of the monthly sick returns of the troops which composed the garrison of Barbadoes in the year 1814.

	Europeans.					Africans.				
	Strength.	Sick.	Ratio of sick per cent.	Died.	Ratio of deaths per cent.	Strength.	Sick.	Ratio of sick per cent.	Died.	Ratio of deaths per cent.
January,	2170	164	7·5	4		827	59		2	
February,	2032	153	7.5	6		833	45		1	
March,	2051	157	7.5	5		833	46		2	
April,	2096	165	7.8	7		857	31		6	
May,	1607	121	7.5	21		868	47		4	
June,	1576	109	7.	3		875	35		4	
July,	1457	143	9.	4		873	51		2	
August,	1570	125	7.9	5		870	42		3	
September,	1538	115	7.5	6		866	42		4	
October,	1545	117	7.6	8		863	22		3	
November,	1512	124	8.	7		857	22		2	
December,	2134	187	8.5	8		854	22		6	
Mn.strength & No. of sick.	1774	142	8	74	4.1	856	38	8.5	39	4.5

Vide Dr Jackson's Outlines of Fever. According to the returns of the sick of his Majesty's army in Madras for the years 1808 and 1809, it would appear that the mean ratio of sick was 12.4 per cent.; and Mr Annesly states, that ten per cent. sick may be considered healthy. This return of the troops in Barbadoes shows that the ratio of sick was eight per cent., which is a considerably lower proportion than that of the sick of the troops in the East Indies. Perhaps there is commonly a higher ratio of sick among the troops in the East than in the West Indies, and a lower ratio of mortality.

8. JAMAICA.

Return of the strength of the European troops employed in Jamaica, the number of deaths, and the annual ratio of decrement by death per cent. per annum, from the year 1812, till the year 1828 inclusive.

	Strength.	Died.	Ratio of loss by death.
1812,	4826	474	9.8
1813,	4128	371	8.9
1814,	3902	322	8.2
1815,	4331	336	7.7
1816,	4235	434	10.2
1817,	4322	317	7.3

1818,	3025	230	7.6
1819,	2969	754	25.4
1820,	2546	301	11.8
1821,	2885	310	10.6
1822,	2400	441	18.3
1823,	2476	155	6.2
1824,	3150	235	7.4
1825,	2644	777	29.3
1826,	2237	176	7.3
1827,	3083	636	20.6
1828,	2700	192	7.1
Mean of 17 years,	3287	438	13.3

Abstract of the returns contained in this and the preceding contribution.

	Stations.	Period.		Total No. years.	Strength.	An. mean No. of sick.	Mean ratio of sick.	An. mean No. of deaths.	Mean ratio of deaths.	An. mean No. of men invalided.	Mean ratio of men invalided.	Tot. loss by death and invaliding.
		From	To									
Home stations	1. GREAT BRITAIN.											
	Scotland,	1816	1822	7	2975		3.6	33	1.1			
	2. IRELAND,	1796	1829	32	36,921		5.1	576	1.5			
Foreign stations.	1. INDIA.											
	Bengal army,	1825	1826	1	7976			774	9.7	379	4.7	14.5
	Madras army,	1808	1809	2	8717	1087	12.4	713	8.1			
	Do. do.	1815	1821	7	12,592			794	6.3	486	3.7	10.1
	17th Dragoons,	1809	1822	14	730			57	7.8			
	Royal Regt. 2d Bat.	1807	1831	24	1067			92	7.6	37	3.1	10.8
	13th Regiment,	1823	1829	7	764			133	19.6			
	34th do.	1803	1823	20	895			69	7.7			
	45th do.	1819	1830	12	738			63	8.5	22	3.	11.5
	59th do.	1806	1818	13	901			69	7.8	21	2.3	10.
	65th do.	1801	1822	22	971			64	6.5	18	1.8	8.4
	69th do.	1805	1820	15	844			68	8.5			
	78th do.	1797	1815	19	846			96	11.3			
	2. CEYLON.											
	19th Regiment,	1796	1819	24	837			62	7.4	24	2.8	10.2
	73d do.	1818	1820	3	654			184	28.1	35	5.3	33.4
	83d do.	1818	1820	3	871			78	8.9	55	6.3	15.2
	3. MAURITIUS.											
	82d Regiment,	1820	1831	12	534			20	3.7	24	4.5	8.2
	4. GIBRALTAR,	1814	1831	17	3267			66	2.			
	5. MALTA,	1824	1831	8	2226			34	1.5			
	6. IONIAN ISLANDS,	1820	1832	13	3467			93	2.6			
	7. WINDWARD AND LEEWARD ISLANDS,	1803	1814	12					13.1			
	Barbadoes,	1814	1814	1	1774	142	8.	74	4.1			
	8. JAMAICA AND HONDURAS,	1812	1828	17	3287			438	13.3			

When the Annual Return of Casualties, which commenced in 1830, has been in operation for a considerable period, statistical records may be compiled that will solve many important problems, concerning which we are at present much in the dark, or completely ignorant. The utility of accurate returns in regard to the army is, I believe, universally admitted; and it is presumed their usefulness may be greatly enhanced by rendering statistical materials easily accessible to individuals in all parts of the world, who may be disposed to add to the stock of facts, and to make a practical use of them.

I am under great obligations to the Secretary at War, the Right Honourable Mr Ellice, for his kindness in affording me access to the documents in his office, and granting me permission to make use of the materials for the benefit of the public. I sincerely hope and trust that his liberality will be duly appreciated, and that his patriotic example will be generally imitated. I am also indebted to Major-General the Right Honourable Lord Greenock, for some interesting statistical materials of the army; and for which I beg to return him my best thanks.

Art. VII.—*Clinical Report of Surgical Cases, from February to August* 1833. By James Syme, Esq. Professor of Clinical Surgery in the University of Edinburgh.

In commencing this Report, it is necessary to explain the changes that have lately taken place in the arrangements for teaching clinical surgery in Edinburgh, in order that those now existing may be fully understood.

Previous to the retirement of Mr Russell, the Professor of Clinical Surgery had no hospital patients under his own care, but, by a private agreement with the managers of the Royal Infirmary, possessed the privilege of lecturing on all the surgical cases admitted into that institution, with the reservation in favour of *one* of the attending surgeons of a right to give clinical lectures on his own patients. In accordance with this arrangement, during the last ten or twelve years, the senior attending surgeon has participated in the duties and emoluments of the professor's course. On my appointment to the Chair of Clinical Surgery, the Senatus Academicus renewed an application they had formerly made to the managers of the Royal Infirmary for the allotment of wards to receive surgical patients, on whose cases the lectures of the professor might be delivered; and, in the event of no such arrangement being effected, authorized the course to be conducted in the Surgical Hospital. The managers then resolved to place three wards, containing thirty beds, under my care; reserving to the two present attending surgeons the right of lecturing on their own patients. The Senatus Academicus approved of this proposal; and, at the unanimous recommendation of the Medical Faculty, added Clinical Surgery to the list of classes imperative on candidates for graduation in this University.

The directors of the Surgical Hospital finding that the contributions of the public, though annually increasing, were still not sufficient to cover a half of the expenditure; and, knowing that it would be impossible for me to give the Institution the same attention and support as formerly, saw no prospect of being able to maintain it, and therefore came to the resolution that it should be closed.* When this establishment was opened four years ago, all the patients of the Royal Infirmary were received under one roof; but since then, the building formerly occupied as the High School has been acquired, and converted into a Surgical Hospital, which, in regard to salubrity and convenience, can hardly be excelled; and the existence of a separate Surgical Hospital is consequently now of less moment than formerly. The Surgical Policlinic, or arrangement for the treatment of out-patients, however, which succeeded so well when carried on in connection with the Hospital, is still maintained with undiminished vigour. The advantages of such an institution may be easily conceived, when it is recollected how many people there are in a large city too poor to pay for surgical assistance, and too proud to solicit it in a public hospital.

Head.

Injury of the Head—Hemiplegia—Loss of Speech—Epilepsy—Operation—Death.—George Moodie, aged 28, was admitted into the Royal Infirmary on the 6th of July, on account of an injury of the head, which he had sustained nineteen months before, and from the effects of which he had not recovered. It was stated, that, on the 4th of January 1832, he had been found lying insensible at the foot of a high wall, from which he must have fallen. He remained unconscious of external circumstances for four days, during which he occasionally moved the different parts of his body, and expressed by cries, as well as unconnected sentences, that he was suffering uneasiness. At the end of this period he regained his intelligence, but was found to have lost the power of moving the left side of

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* Receipts from 1829 to 1833.

Contributions, .	L. 918	3	5
Students' Fees for attendance,	222	8	0
From Mr Syme, .	1775	11	4
	2916	2	9

Expenditure from 1829 to 1833.

Furniture and Medicines,	L. 653	9	1
Rent, Taxes, and Wages,	716	19	8
Maintenance of Patients.	1500	0	3¼
Miscellaneous,	113	12	7
	2964	1	7¼

his body, and of articulating words, with the exception of one or two of the simplest monosyllables. He was copiously depleted, and took large quantities of mercury without any advantage. He continued, with very little alteration, in the same state, eating, sleeping, and performing his other functions in a natural manner, but possessing very imperfect use of the right arm and leg, and making no improvement in articulation, though he was quite aware of his situation, and understood all that was said within his hearing, while at the same time he retained hardly any recollection of written or printed words. Some months after the injury, his head being carefully examined, a slight semicircular ridge was perceived a little above the forehead, on the left side of the head, below which the bone seemed somewhat flattened. He then came to town with the view of having the depressed portion of the skull removed, and applied to me. I asked Dr Abercrombie to see him, and he regarding the symptoms as indicative of a much more serious derangement of the brain than could be supposed to result from so very slight a depression, considered an operation unadvisable. The patient went home, and, on the 17th of April last, returned still more desirous of having something tried for his relief. He was then admitted into the Surgical Hospital, and again carefully examined by Dr Abercrombie, who adhered to his former opinion, with which my own entirely concurred. On the 6th of July, the patient a third time came to town, and expressed through his friends the determined resolution of having an opening made at the injured part of the bone. In addition to his former complaints, he had begun to suffer from epileptic fits, which occurred about once a fortnight, and it seemed probable that his very miserable state of existence would not be of long duration. He was admitted into the Royal Infirmary under my care, and carefully examined by my colleagues, Sir G. Ballingall, Dr Campbell, and Professor Turner. We still felt the strong objection to an operation, depending on the disparity between the symptoms and the obvious lesion, but thought that the epileptic fits, and their increasing frequency, tended to strengthen the suspicion that there might be some source of irritation at the seat of the injury; the internal table might perhaps be depressed more than the external one, or there might be a preternatural thickening of the bone. It was therefore resolved to remove a portion of the skull at the injured part. On the 22d, the surface of the cranium having been exposed, by making a triangular incision through the scalp, and reflecting the flaps, a trepan was applied so as to comprehend the edge of the depression, and worked until a groove was formed in the bone. The instrument was then converted into a trephine, by detaching the saw, and connecting it with a simple cross-handle, —after which the operation was conducted as usual. When the piece of bone was removed, it appeared that the internal table was not affected, and the *dura mater* presented a natural aspect. As there did not seem to be any prospect of advantage from carrying the operation farther, the edges of the wound were brought together, and retained by a single stitch in the centre. On the day following the operation there was no complaint; but the pulse being 98, and full, ℥xx. of blood were abstracted as a precautionary measure. On the second day there was no complaint. On the third no complaint; pulse 86; the wound looking well. On the fourth day the report is, "Still continues well." On the evening of the sixth day he had a fit; and on the following morning another very severe one. On the eighth day the report is, "Much better to-day, and in good spirits." In the evening he complained of pain in his head, and was bled to the extent of ℥xii. On the ninth day he had a severe fit; after which he remained pale, and almost comatose; pulse 124. In the evening he had two fits. On the following day he had four attacks in rapid succession; and on the eleventh day he died.

On dissection, the cranium and *dura mater* were found to present nothing remarkable. When an opening was made into the *dura mater* of the injured side, three or four ounces of turbid serum gushed out, and the membrane collapsed upon the middle lobe of the brain,—the surface of which, instead of being convex, was concave, and very irregular, displaying a number of small elevations and depressions. A section being made through this part, it was observed that the entire substance of the middle lobe possessed an unusually tough consistence, and was, throughout its whole extent, from above downwards, converted into a cavernous structure, the interstices of which were occupied by serum. The lateral ventricles contained more fluid than usual; and the inferior surface of the middle lobe was discoloured and soft. The only other morbid appearance observed, was a very distinct ramollissement, to the extent of about a shilling, but of little depth, on the inferior surface of the anterior lobes, corresponding with the bulbs of the olfactory nerves, and the cribriform plate of the ethmoid bone.

There can be little doubt that the morbid appearances which have been mentioned, with the exception of the softening, which may be referred to the effect of inflammation, depended upon the effusion of blood, which being afterwards absorbed, had its place occupied by serum. It is certainly remarkable that so extensive a derangement of the cerebral structure should not have been attended with more imperfection of the bodily or mental faculties. Perhaps this may be accounted for in some measure by the integrity of the right side of the brain, which seemed to be perfectly sound every where, except the small part corresponding with the cribriform plate, where it was diseased on both sides.

The mode of performing the operation which has been described, will, it is believed, be found preferable to that in common use. Every one who has employed the trephine, either on the dead or living body, must have experienced great difficulty in forming the groove which confines the action of the instrument, and must have noticed, that while the part of the operation previous to the attainment of this step was extremely tedious and laborious, the remaining part of it was easily and speedily effected. The trepan being worked with much more power, readily overcomes this difficulty, and, with the delay of not more than a few seconds, may be converted into a trephine, when the groove is deep enough to keep the saw steady. The difficulty of the operation is thus removed without adding to its danger.

Parotid Tumour.—Extirpation.—Mary Dawson, aged 20, was admitted on the 22d of June, on account of a tumour occupying the situation of the parotid gland. It was of the size and form of the half of a small orange; the surface was slightly botryoidal, and the consistence was firm. It could be moved a little upwards and downwards, but not forwards. It was not painful. The patient stated that she had first remarked the swelling about five years ago, when it was very small, and that of late it had increased much more rapidly than during the previous period.

The tumour was removed on the 26th, by making one long incision from above downwards, turning aside the integuments, and dissecting out the morbid growth from the substance of the parotid gland, in which it was imbedded. A process extended very deep behind the angle of the jaw; but by detaching the anterior edge of the tumour first, and reflecting it backwards, the operation was completed with little difficulty. Two pretty large arteries, and a considerable branch of the *portio dura*, were divided. The vessels were tied; and the edges of the wound having been brought together by a couple of stitches, a sponge was applied with moderate force to restrain the oozing of blood from the cut surface of the parotid. The patient was dismissed on the 9th of July quite well, without any unseemly trace of the operation, and with the slightest possible paralysis of the face, which could be perceived only when she smiled.

The tumour was found to possess a fibrous consistence, with small cells containing fluid interspersed,—a kind of morbid growth frequently met with in the neighbourhood of the parotid and mammary glands, the place of which, when allowed to grow large, it often occupies so completely as to appear an enlargement of the glands themselves.

Cancer of the Nose.—Amputation.—William Stewart, aged 52, was admitted into the Surgical Hospital, on account of an extensive ulceration of the nose, and was transferred from it to the clinical ward, in the Royal Infirmary, on the 14th of May. The ulcer engaged the whole integuments of the nose, the point of which hung pendulous over the lip, and exposed a small part of the nasal bones. The discharge was thin, and very fœtid.

The patient stated, that five years ago a small wart appeared on the bridge of the nose, for the removal of which he applied to several irregular practitioners in succession, who greatly aggravated the evil, in the first instance, by the local irritation of caustic, and afterwards, by the constitutional derangement of mercury, given so as to occasion profuse salivation. Upon his admission into the Surgical Hospital, lotions of the black wash, and solution of the sulphate of zinc, were used with the effect of removing the inflammatory swelling and attendant pain that had previously existed; and when he entered the Royal Infirmary, the disease, which had become quite circumscribed, exhibited the most distinct characters of a carcinomatous disposition.

On the 21st of May, an incision was made round the ulcer, extending to the bone, and passing through the cartilages, a finger being kept under the upper lip to guide the knife in detaching the *columna nasi*, so as to protect the mucous membrane of the mouth. Cutting forceps were then employed to divide the nasal process of the maxillary bone, first upon the one side, and then upon the other, the blades being directed upwards, after which the instrument was reversed, so as to cut through the roots of the nasal bones. The hemorrhage which followed being considerable, and proving not easily restrained by ligature, a couple of tubes were introduced into the nostrils, and pressure was then made upon the raw surface by compresses of lint with a bandage.

The patient had a slight attack of erysipelas, which was followed by a glandular swelling under the jaw, that proved very obstinate, but finally disappeared under fomentations and poultices, with the exception of a small pimple-like abscess. It was apprehended that this might prove of a carcinomatous nature, but the circumstance of its having not existed *previous* to the operation, afforded reason to expect that it might be independent of malignant action. The ulcerating surface, which resulted directly from the operation, is now firmly healed, except a small point at one side, which looks rather suspicious, and the patient's general health is completely restored.

In the event of the case proving permanent, it will be necessary to provide a substitute for the nose; but this will not be attempted on the Taliacotian principle, which even in the most favourable and successful cases hardly does more than substitute a positive evil in the place of a negative one. A truly *artificial* nose, constructed of some foreign substance, would probably supply the defect more comfortably.

Cancer of the Tongue.—Excision.—Elizabeth Low, from Kettle, aged 41, was admitted into the Surgical Hospital on the 20th of March, on account of a very formidable-looking ulcer of the tongue. It extended from the apex backwards along the right edge, terminating opposite the second molar tooth, and leaving free not more than a third part of the organ. The surface of the ulcer was extremely irregular, and its stool was very hard. She stated that the disease was first noticed some months before, and had latterly made very rapid progress. Her general health was pretty good, and no glandular enlargement could be found on the most careful examination of the neck.

The operation was performed by seizing the ulcerated part with the fingers of the left hand, so as to keep it steady, and distinguish the confines of the disease, beyond which two or three successive strokes were then made with a pair of probe-pointed curved scissors. The two raninal arteries presenting themselves near the frenum were the only vessels that required to be tied; and the cut surface afforded but an inconsiderable oozing. About a fortnight afterwards, while the sore was healing favourably, an abscess formed in the neck, about midway between the jaw and clavicle. It was evacuated by free incision, and soon healed. The patient was dismissed quite well on the 18th of April.

Malignant sores of the tongue are removed more advantageously by excision than the ligature. The latter method is extremely painful, and very uncertain, as the thread is apt to slip in the drawing of the knot, while the only objection that has been urged against excision, viz. the danger of hemorrhage, must be admitted to be more theoretical than practical, since the only considerable arteries of the tongue lie near the fore part, where they are easily accessible, and since in point of fact excision has been very freely performed without any such bad consequence.

It was curious to observe in this case, that, although so small a portion of the tongue remained, the patient retained the power of articulation nearly unimpaired. Similar facts were formerly supposed to afford evidence of reproduction of the tongue after partial destruction of it by violence or inflammation; but it is needless to impugn this opinion, as it has been already so completely refuted by Louis.*

Tumour of the Lower Jaw—Amputation—Recovery—Death from another cause.—Margaret Walker, aged 27, from Cupar. In the last Report of the Surgical Hospital, there is related a case of tumour of the lower jaw, which was removed by cutting the alveolar ridge horizontally with strong forceps. The wound healed kindly; and the cure was expected to be no less permanent than complete. The patient, however, returned in the beginning of May, labouring under a larger tumour than the original one, but occupying the same situation. It extended from the anterior molar tooth of one side to that of the other—projected the lower lip—and pressed back the tongue. It was slightly nodulated on the surface, possessed a firm elastic consistence, and was covered with sound mucous membrane. The patient complained of a dull gnawing pain in the seat of the disease, and felt her articulation, as well as mastication, much impeded. The growth was rapidly increasing, so that there was a perceptible difference in its size every week.

The operation was performed on the 17th, by making an incision at one angle of the mouth obliquely backwards and downwards to the base of the jaw, opposite the second molar tooth; and then another along the base of the bone, round to the corresponding point of the opposite side,—dissecting away the flap thus formed,—extracting the two anterior molars,—making a notch in the bone on each side with a saw,—completing the division of the jaw with cutting-plyers,—and then detaching with a knife the remaining connections of the tumour, while the tongue, enveloped in a towel, was held by an assistant to prevent suffocation from its retraction into the pharnyx. The vessels that required ligatures were then tied. Some pieces of folded lint were laid in the place of the jaw, and the edges of the incisions were then drawn together by the interrupted suture. Union by the first intention ensued throughout the whole extent of the wound. On the 21st, most of the stitches were taken out; and on the 22d, the wound was completely healed, with wonderfully little deformity. During the following week, she continued well, sitting up, and walking about, and would have gone home had it been in the neighbourhood. On the night of the 29th, in consequence, it was supposed, of a window having been left open on account of the extreme heat of the weather, she had a rigor, and next day exhibited the ordinary symptoms of the influenza—then prevailing in this city. In addition to the constitutional disturbances, she at first complained of headach, then of swelling of the tongue, and next of cough, with pain in the chest; along with the last of which there was a slight erysipelas of one cheek. These local affections were combated by appropriate means; but she became weaker, while the difficulty of respiration increased, and she died on the 5th of June.

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* Mem. de l'Academ. de Chir. Tom. v.

On dissection, no morbid appearance could be discovered in the mouth or pharynx; but the mucous lining of the bronchial tubes, which contained much frothy mucus, was vascular, and in each cavity of the pleura were about two pounds of serous fluid.

Medullary Tumour of the Bones of the Face, with Abscess of the Antrum.—William Anderson, aged 60, from Langholm, was admitted on the 22d of June, on account of a large swelling of the left side of the face. It commenced immediately below the eye, which, from the distension of the lower lid, could hardly be opened, descended to the mouth, and pressed the nose towards the opposite side. There was a small opening a little below the margin of the orbit, which allowed a probe to enter downwards and backwards to the extent of at least two inches. A small quantity of matter issued from this orifice, and also from the left nostril, when the patient assumed the horizontal posture. On examining from the mouth, it was felt that the tumour commenced immediately above the alveolar processes, as if formed by expansion of the anterior wall of the antrum; that the left canine and lateral incisor teeth were loose; and that the left side of the palate yielded to pressure.

The patient's appearance was unhealthy, and his pulse was irregular. He stated that he had had a discharge of matter from the left nostril for a good many months, but had first perceived the swelling of the face only twelve weeks previous to the time of admission. The opening in the cheek had taken place spontaneously about a month after the tumour appeared. He complained of a dull aching pain in the affected part.

On the 24th, a free opening was made into the antrum, by cutting above the gum of the bicuspid tooth, which allowed a quantity of bloody pus to escape. Considerable diminution of the pain and swelling followed; but matter still issued from the sinus of the cheek, which was therefore dilated by incision downwards on the 28th. Passing my finger into the cavity, I ascertained that the swelling depended almost entirely upon expansion of the parietes of the antrum; that the lining membrane seemed to be not materially altered; and that it was only towards the orbit and nose that any solid enlargement could be found. In the course of this examination, the roots of the canine and lateral incisor teeth were felt projecting into the cavity, and pressure was made upon them so as to effect their removal. Poultices were applied to the face in the first instance after these operations, and then lotions of sulphate of zinc, with injections of warm water, into the cavity. A great improvement soon took place. The cheek regained a natural appearance, the nose became straight, and the eye was no longer closed. Notwithstanding this improvement, which led the patient to think himself on the point of getting quite well, the case retained a very unpromising aspect, as the upper part of the left nostril was occupied by a soft polypous growth from the bone, and a swelling still existed at the inner angle of the eye, which seemed to depend on a similar morbid formation. As any attempt to eradicate the disease would in these circumstances have been absurd, it was resolved to do nothing more, and send the patient home with the relief that he had obtained.

On the evening of the 5th of June, he had a rigor, which continued during the night. In the morning, he had an emetic, followed by a dose of calomel and antimonial powder. In the course of the succeeding night his breathing became very difficult, and attended with a very loud mucous rattle. He continued quite sensible, but made no complaint of pain. He died next day at 2 P. M.

On dissection, the inferior margin of the orbit and the left wall of the nasal cavity were found occupied by a soft white pulpy substance. No morbid appearance could be perceived in the brain or its membranes, except a slight degree of softening at the anterior part of the fornix. The lungs did not collapse when the chest was opened, they were much engorged with blood, and the bronchial tubes were filled with frothy mucus. There was hypertrophy of the right ventricle of the heart, and ossification of the mitral valve.

The combination of abscess in the antrum, with a morbid growth of the neighbouring bones, is very uncommon. The disease in this case was evidently incurable, and would have been found beyond the reach of surgery from its earliest commencement. But it is satisfactory to know, that many of the tumours which originate in the superior maxillary bone may be completely and radically removed by the operation lately introduced, on the same principle that has led to such successful results in the treatment of similar growths affecting the lower jaw. Betsy Lees, of Galashiels, whose case is related in the Eighth Report of the Surgical Hospital, and who was operated on in January 1832, on account of a large, soft, bloody, most malignant-looking tumour, which encroached upon the cavity of the mouth, and elevated the cheek, presented herself lately, to show that she was in all respects perfectly well. The experience of M. Gensoul of Lyons, which has lately been given to the profession,[*] is strongly in favour of this operation. He was the first to perform it, which he did in 1827, on account of a fibro-cartilaginous tumour of the bone, and the patient continues well. He has operated in eight cases, and follows the same method which has been described in the foregoing reports, and elsewhere,[†] without any knowledge of his proceedings.

Pelvis.

Lithotomy.—R. W. aged 60, was admitted into the Surgical Hospital on the 8th of March, on account of stone in the bladder, under the symptoms of which he had laboured very severely for three years. He suffered unusual difficulty in voiding his urine, and was provided with a catheter, which he frequently found it necessary to introduce. The operation was performed on the 15th, and a flat round calculus of uric acid, weighing ten drachms, was extracted. The patient made a good recovery, and went home quite well on the 9th of April.

Lithotomy.—John Grieve, aged 72, was admitted into the Clinical Ward of the Royal Infirmary on the 7th of June, to have the operation of lithotomy performed. He had suffered from urinary complaints for ten years, during the last five of which the symptoms of calculus had been very well marked, and of late had become quite intolerable. After his admission, an obstinate constipation of the bowels occurred,—and the repeated administration of purgatives, together with injections, afforded him but imperfect relief. The extreme pain of the disease deprived him of sleep, and he became so impatient for the operation, that though his bowels remained in a very unsatisfactory state, and his tongue was still coated with a white crust, it was agreed to operate on the 14th. On the day before, he had a severe rigor, during which his cheeks and lips were similar to those of a victim to cholera; but as this passed off without any bad consequence, and as, on the day appointed, he looked rather better than usual, it was resolved to proceed, in the hope that the removal of the source of irritation would prove the best means of remedying the derangement, which could hardly be expected to subside so long as it was allowed to remain.

Ten calculi, all nearly of the same size, and each weighing between two and three drachms, were extracted without any difficulty or delay; there was very little hemorrhage, and the patient did not seem to suffer much. During the two following days he slept well, took his food with appetite, and was perfectly free from pain. The urine came away freely, and he had copious evacuation of the bowels without the aid of medicine. On the 16th, at ten o'clock P. M., he had a cold fit, similar to the one that took place before the operation, but not nearly so severe. Next day his pulse, which had been quick all along, was 120, and his skin was very moist, but he continued to take his food well, and made no complaint. During the five succeeding days his pulse continued at 120, and was sometimes even more frequent; his appetite gradually declined; he became weaker, without having any local complaint, and died on the 23d.

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[*] Lettre Chirurgicale sur quelques maladies graves du sinus maxillaire, &c. Lyons, 1833.

[†] Principles of Surgery, by James Syme, Edinburgh, 1832.

On dissection, the parts around the wound were found quite healthy. There was no appearance of inflammation at the neck of the bladder, and no inflammation or purulent effusion in the adjacent cellular substance. The prostate gland was much enlarged, but retained its natural consistence somewhat more condensed than usual. The coats of the bladder were thickened, and the mucous membrane was very rough, with a whitish crust adhering to it. Between two and three pounds of serous fluid were found in the right cavity of the pleura. No other morbid appearance could be discovered.

Lithotomy.—Robert Cairn, aged 10, was admitted on the 10th of July, on account of stone in the bladder, from the symptoms of which he had suffered three years. The operation was performed on the 16th, when an oval-shaped calculus composed of oxalate of lime was extracted. No unpleasant consequence resulted, and the patient was dismissed quite well on the 31st.

Fistula in Perineo, with Stricture of the Urethra.—Thomas Lee, aged 56, from Jedburgh, was admitted on the 4th of June, on account of *fistula in perineo.* There were four openings between the scrotum and anus, and the whole perineum was greatly swelled, with much induration. The urethra was found tightly strictured at the neck of the glans, and in the neighbourhood of the bulb, where the canal was extremely hard and unequal on the surface. The patient stated, that, eight months previous to his admission, he had had a gonorrhœa, for which he took a large quantity of mercury,—that a collection of matter formed and opened four months afterwards,—and that the different openings in the perineum depended on a succession of such collections. He was excessively sensitive and apprehensive, and could not be prevailed upon to let a bougie be passed until the 20th; indeed he was so weak, and suffered so much from attacks of shivering fits and diarrhœa, that it would hardly have been prudent to do so sooner. The following reports will show the progress of the case.

23d. The bougie, No. — 1. was passed into the bladder, and followed by No. 1.

26th. No. 1. passed.

July 1st. No. 2. was introduced as far as the neck of the bladder.

July 4th. No. 2, 3, and 4. passed.
—— 7th. No. 3. and 4. ———
—— 9th. No. 4. and 5. ———
—— 14th. No. 5. ———
—— 17th. No. 5. and 7. ———
—— 22d. No. 7. and 8. ———
—— 29th. No. 8. and 9. ———
Aug. 2d. No. 9. and 10. ——— The patient was then dismissed, making water in a full stream, with all the openings closed, and the hardness gone.

Abscess of Perineum, communicating with the Urethra after its evacuation.—Alexander Hay, aged 32, was admitted on the 21st of July. He complained of swelling of the scrotum; but, when the perineum was examined, it appeared so full and tense, that no doubt could be entertained as to the presence of matter there in considerable quantity. He complained of great pain; and stated that he had begun to do so thirteen days before, soon after exposure to cold and wet. About ℥xii. of thick and excessively fetid pus were evacuated by a free incision, after which a poultice was applied to the perineum. On the 28th, the patient observed that a small quantity of urine, about two tea-spoonfuls by computation, passed through the wound; on the 30th a full sized bougie was passed into the bladder, without encountering any resistance from contraction of the canal; on the 6th the urine ceased to pass by the preternatural opening; and on the 12th he was dismissed quite well.

It is a well known fact, that the cavities of abscesses near the urethra, like those in the vicinity of the rectum, are apt to communicate with the neighbouring canal some time after the evacuation of their contents. This cannot, of course, be owing to ulcerative absorption induced by pressure, and probably depends on the same principle that leads to the successive formation of several openings in the thin integuments lying over the cavities of abscesses, where they have been rendered very thin to a considerable extent.

Extremities.

Morbus Coxarius—Abscess—Dissection.—Archibald Hodge, aged 14, was admitted into the Surgical Hospital on the 11th of April, and transferred to the Royal Infirmary on the 10th of May. The right thigh, from the hip down to within a third of the knee, was very greatly enlarged, the skin was tense and shining, and the cutaneous veins very conspicuous. The fluctuation of a fluid was distinct throughout the whole swelling. He did not complain of pain in the hip or knee. The metatarsal bone of the right great toe was enlarged, and exposed at several points. It was stated, that, about a year before the date of his application, the wheel of a cart passed over his foot, causing an injury, which led to the disease there; and that, soon after suffering this accident, he had fallen from a horse on his hip; since which time the tumour had gradually appeared.

The matter required two incisions for its evacuation, being contained in two distinct cavities. The patient suffered no bad consequence; and for some weeks seemed to be in a fair way to recovery, as the discharge from the openings diminished, and his appetite was good. On the 13th of May, he began to suffer from diarrhœa, and exhibit the features of hectic. On the 17th, he complained of severe pain in the knee, aggravated by the slightest motion of the thigh. At this time a remarkable shortening of the affected limb was observable, and afterwards became progressively more so. The diarrhœa proved obstinate, notwithstanding a variety of means employed to counteract it. His strength gradually declined, and he died on the 4th of June.

On dissection, no trace of the capsular ligament of the hip-joint could be discovered. The head of the thigh-bone was divested of its cartilage, except for a small extent near the neck. The upper margin of the acetabulum was so far diminished by absorption, as to allow an incomplete dislocation of the thigh-bone, which, together with the oblique position of the pelvis, had occasioned the appearance of shortening that had been so remarkable. The surface of the acetabulum was completely denuded of cartilage, and at the centre of the cavity there was a round opening that led into the pelvis. There were here some loose pieces of dead bone; and on the inner surface of the *os innominatum*, a great effusion of new osseous substance was observed in the neighbourhood of the aperture.

The advanced stage of the disease in this case prevented the dissection from throwing much light upon its primary seat and nature, but the state of the parts certainly tended to confirm the opinion, that the *morbus coxarius* is in its origin a disease of the osseous tissue composing the acetabulum. In addition to the cases formerly related, it may be noticed that several patients labouring under the disease in its early stage have been treated within the period to which this report refers, by applying the cautery very freely to the hip, and with the most marked benefit.

Necrosis of the thigh-bone, with caries of the knee.—Amputation.—John Sharp, aged 13, from Alloa, was admitted on the 3d of August, on account of a very extensive disease of the right thigh and knee. The thigh-bone was greatly enlarged throughout the whole of its extent, from the trochanters downwards, but chiefly in the neighbourhood of the knee. There was a pretty large opening immediately above the *patella*, and on each side, an inch or two farther up, there was a smaller one. The integuments surrounding the joint were swelled, tense, and red. A profuse fetid discharge issued from the sinuses, the *patella* was immoveable, and at the bottom of the central aperture a large piece of dead bone could be felt and even seen. The disease commenced about nine months previous to the time of admission with a severe shivering, succeeded by intense pain.

As the exfoliation seemed to be loose, it was thought right to attempt its removal. With this view the lateral opening which lay nearest the central one was joined with it by incision, so as to expose the dead bone more fully. It then appeared that the inner surface of the patella was carious, and that, consequently, the removal of the exfoliation could not be productive of any effectual relief. The limb was amputated on the 9th, close to the trochanter. The bone was greatly enlarged at the place of its division, but did not display any sign of diseased action farther than what might be expected from the influence of continued irritation. The condyles were bent considerably backwards, so that the exfoliation, which comprehended the whole thickness of the shaft, presented itself anteriorly to the articulation. It was of a conical figure, and five or six inches in length, lying within the expanded shell of the thigh bone. The extent of the joint was much contracted by the effusion and organization of lymph which fenced it from the carious patella. But the cavity of the thigh bone which contained the exfoliation extended into the condyles, where its surface presented the characters of caries.

The sudden removal of so extensive a disease, perhaps, more than the irritation of the operation, excited some constitutional disturbance, and the boy was so very weak previously, that his condition seemed rather critical. The following extracts from the journal will give an idea of the succession of symptoms.

10th.—Passed a quiet night, and got some sleep. Is making no particular complaint to-day. Took a small quantity of bread and milk for breakfast. Pulse 130; tongue white. Bowels opened this morning.

℞ *Aquæ Acet. Ammon.* ℥ij.; *Tart. Antim.* gr. ij.; *Aquæ* ℥xij. M. To take ℥i. every hour.

11th.—Passed a good night, but was frequently awakened by pains in the stump. It was found to be rather swelled this morning, and the dressings were removed. Tongue white. No evacuation to-day from his bowels. Pulse 112. He took some breakfast. The stump was dressed with simple dressing.

12th.—Continuing well. No evacuation from the bowels.

℞ *Pulv. Rhei* gr. v.; *Magnes. Ustæ* gr. xij. M. To be taken immediately.

3 P. M.—Had a rigor about twelve o'clock, which lasted for about ten minutes, and was succeeded by heat of skin, flushing of the face, and headach. Pulse 160. About four o'clock he was perspiring very profusely, and the headach had left him.

Ordered a common enema immediately.

8 P. M.—Is making no complaint. Skin hot, but moist; tongue furred; pulse 120. Has great thirst. One stool from the enema.

13th.—Passed a good night, and took his breakfast well. Has no headach; tongue white; pulse 110; skin cool; thirst abated. Discharge from the stump of better colour, and increasing in quantity. Some of the ligatures were removed.

Simple dressing, and a bandage were applied.

14th.—Passed a good night, and took his breakfast well. Face flushed; skin hot; pulse 140. One evacuation from the bowels this morning; tongue cleaner. Discharge from the stump more copious, but of better colour. Some of the stitches were removed, and the edges brought into contact by straps of adhesive plaster. Continue the simple dressing.

8 P. M.—Was perspiring very profusely, but was making no complaint, and had no rigor before the perspiration appeared; pulse 120.

15th.—Passed a good night, but did not take his breakfast so well. Five stools since one o'clock this morning. Pulse 104; skin cool. Appearance of countenance more natural. Tongue white, except a streak in the centre, which is red. Discharge from the stump diminished. The tension is nearly removed. The remainder of the ligatures came away, and the other stitches were removed.

℞ *Mist. Cretæ,* ℥viij.; *Tinct. Opii,* ʒi. M. To take ℥i. of the mixture three or four times a-day.

8 P. M.—Was perspiring very profusely, but was making no complaint. One watery evacuation since the visit.

16th.—Slept well, and took his breakfast as usual. Skin cool; pulse 106; tongue cleaner. One alvine dejection this morning. Discharge from the stump much the same in quantity, but of thicker consistence.

17th.—Perspired yesterday evening, but not so profusely. Passed a good night; pulse 110; tongue clean; skin cool; two evacuations from the bowels since the visit of yesterday. Stump looking well; the wound is healing, but the granulations are pale and flabby.

Continue the dressing. To have half a pound of beef-tea for dinner.

18th.—Had some nausea yesterday afternoon, which soon went off. He continues well. Four evacuations since yesterday evening. Pulse 106.

19th.—Continues well; a great part of the wound is healed; discharge less; pulse 103; one evacuation from the bowels.

The wound to be dressed with a lotion of the sulphate of zinc.

26th.—Since last report the patient has been daily improving. The stump is almost healed, and his health is quite good.

The distinction between Necrosis or death of bone, and Caries, or incurable ulceration of it, is now fully understood and discriminated in practice, but the combination of these morbid states has not been so much attended to as it deserves. In the lower end of the thigh bone it is far from unfrequent. The causes are usually blows, strains, or the indirect irritation of exposure to cold. The symptoms are enlargement of the bone, from the condyles to more or less extent upwards, followed by suppuration, and in general the discharge of exfoliations. The distinctive character between this affection and simple necrosis is the participation of the condyles in the swelling. And the distinction should be carefully made; since, while simple necrosis is a disease that tends to its own cure, and seldom requires much interference, the caries that complicates the case, exhibits its peculiar obstinacy, and renders recovery quite hopeless. The predominant features of the disease being those of necrosis, are apt to lead away from the suspicion of caries, and induce the attendant to abstain from performing amputation in the vain expectation of a natural cure. I have met with many cases of this kind, some of which have been related in the former Reports; and lately amputated a thigh which had been thus affected during the long period of thirty-nine years,—having first suffered when the patient was eleven years of age. When the true nature of this mixed disease has been recognized, no doubt can remain as to the propriety of recommending amputation; and if the operation is performed in youth, while the system has more power of accommodation to circumstances, and has not become habituated to the disease by long endurance of it, the patient will not only be saved a length of protracted misery, which must embitter his comfort and impede his usefulness, but also be saved the danger, or rather certainty, of a fatal issue, which must attend the removal of the limb at a more advanced period of life.

Excision of the Elbow Joint.—George Muir, aged 10, from Selkirk, was admitted on the 9th of March, on account of a diseased elbow-joint. There was a large ulcer, nearly two inches in length, over each of the condyles of the humerus, through both of which a probe could be readily passed to the bone. The boy looked rather pale and sickly. It was stated, that the disease had commenced spontaneously about three months before.

The operation was performed on the 12th. It then appeared, that the humerus was chiefly affected, and a portion of it, not less than an inch and a-half in length, required to be removed. The other articulating surfaces were detached, and the after-treatment conducted as usual. He was not confined to bed after the third day, and in a fortnight began to use the arm. He was dismissed on the 9th of April.

Excision of the Elbow-joint.—Boaz Simpson, aged 13, was admitted on the 29th of May, on account of a diseased elbow-joint. It was very much enlarged, stiff, and discoloured. Various sinuses, opening at different parts on all sides of the limb, led down to the bones. The arm both above and below the elbow was extremely emaciated. The patient was of very small growth, and had a short dry cough; but took his food well, and was in other respects healthy. It was stated, that the disease had commenced between three and four years ago, with the formation of an abscess, independently, so far as could be learned, of any external violence, and had since advanced progressively notwithstanding every attention.

It was evident that recourse must be had either to excision or amputation, and though the patient certainly did not seem a favourable subject for either, or indeed for any operation, the former did not appear to be attended with more danger than the latter, while the preservation of the limb was evidently a most important object.

The operation was performed on the 7th of June in the usual way. The whole of the articulating surfaces were removed. The patient suffered hardly any constitutional disturbance, and on the third day was allowed to sit up. The discharge in a few days almost ceased; and in the course of a fortnight he could use the arm a little. He was detained in the Hospital until the 5th of August, in order that his progress to complete recovery might be observed, but might have been dismissed much sooner, as for several weeks there had been merely a few drops of serous discharge daily.

James Topings, who was operated upon last October, and whose case is related in the preceding report, was in town a few days ago, and afforded us an opportunity of seeing that the limb was perfectly sound, without swelling or deformity, and capable of performing its usual motions of flexion, extension, pronation, and supination. The following letter, which was lately received from another patient, whose case has been related in a former report, may perhaps tend to confirm the opinion of those who think well of this operation.

WORTHY SIR, *Cupar-Fife, 5th August* 1833.

I take this opportunity of again expressing my gratitude towards you, and to let you know to what perfection my arm has arrived at since you operated upon it in 1830, July 15th. I wrote to you as I promised as soon as I could hold the pen, as you know it is my right arm, and with it the office of writing is performed. I think it was about the 5th December 1830, when I wrote you that it was almost whole, but very weak.

I have now to state to you what I have been employed at for nearly this two years, and how my arm performs its duties. I commenced grocer and spirit-dealer in this burgh about two years ago, and I find my arm quite sufficient for this business. I can carry eighteen or twenty pounds with ease, put six or eight pounds up to my head with it, make out accounts, &c. so that no person would know whether I had my elbow-joint or wanted it. I have even asked some people if they thought there was any thing the matter with my right arm, which they answered they could discover nothing. I most certainly think the case of my arm a very wonderful one, on account of the great strength and flexibility it has gained. I must attribute this to your admirable operation. If you had not operated upon it I could not have expected to live long, as my health was very much impaired before I applied to you. But Divine Providence has ordered it otherwise. I am now enjoying as good a state of health as ever I did. Accept of my most grateful thanks; and may Heaven bless you for all your kindness and humanity towards me.—I am, Worthy Sir, your obliged and humble servant, DAVID FORREST.

It does not seem necessary to notice particularly the other operations that have been performed, viz.

Two amputations of the leg,—several excisions of the mamma,—amputations of fingers and toes, with and without metacarpal and metatarsal bones,—fistula in ano,—hydrocele,—polypus,—enlarged tonsil, and other small operations.

ART. VIII.—*Description of the Midwifery Instruments of Dr* CHAMBERLEN, *found at Woodham, Mortimar-Hall, near Maldon, Essex,* 1818. By EDWARD RIGBY, M. D.

UPON a former occasion, I endeavoured to give a historical analysis of the English midwifery forceps, and to point out the various improvements and changes which they had undergone, from the extractor, as used by Giffard in 1726, to the more perfect instrument, as left us by Dr Smellie.

I now take the liberty of calling the attention of the Society to an earlier, and perhaps even more interesting, period of their history.

Having received permission of the president of the Medico-Chirurgical Society to inspect the instruments which were found in 1818 at Woodham in Essex, and which, there can be no doubt, belonged to the celebrated Dr Chamberlen, a number of interesting facts presented themselves to my notice; and as no description of them has hitherto been published, an account of these instruments, and the chief points of resemblance between them and the various extractors, levers, &c. of the above-mentioned period, will form the object of the present inquiry.

It is well known with what a degree of mystery the Chamberlens had enveloped their secret, and what pains they had taken to keep the world in perfect ignorance as to the nature of it, not only during their own lifetime, but also for succeeding generations. Still, however, the forceps appear to have been known among a few practitioners in England at a very early period; because those which belonged to Mr Drinkwater, "who began practice in 1668, and died in 1728," as far as can be ascertained from Dr Johnson's description,* very much resembled the more finished specimens among the instruments under present consideration; and it is much to be regretted that neither Giffard or Chapman have given us any information as to whence they had obtained their instruments. Chapman, who, as far as I can judge, used the forceps as early as Giffard did, does not appear to have received them *directly* from the Chamberlens, as he evidently expresses himself uncertain as to the nature of their secret, although there was every reason to presume that it really was the forceps.† Chapman was the first in England who published a description of these instruments; and for some time afterwards, both in this country as well as in France, they were known as Chapman's forceps;‡ and, with the exception of some trifling changes, continued to be the French forceps, in the hands of Gregoire and Levret, until 1751.

Although these instruments were considered to have been originally the Chamberlen secret, still so completely had the nature of it been concealed by its inventor, that even in 1751 Exton § doubted whether any instrument had been used at all, supposing that the Chamberlen secret was merely an easy method of turning. There were, however, no grounds for this supposition, because Chamberlen himself, in a note to his translation of Mauriceau, says, " this chapter might be very well spared, if every practitioner had the art the translator professeth in his epistle, of fetching a child, *when it comes right, without hooks or turning it.*" * The chapter alluded to is entitled, " How to fetch a child, when coming right, it cannot pass, either because it is too big, or the passage cannot be sufficiently dilated." And even if Chamberlen had not made this observation, the morbid dissection of the poor woman in 1670, who, Mauriceau had declared, could not be delivered except by the Cæsarean operation, and whom Chamberlen had in vain attempted to deliver, gave but too evident proofs that an instrument had been employed upon the occasion.

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* New System of Midwifery, by R. W. Johnson, M. D. p. 170.

† Chapman's Midwifery, p. 5, 2d Edition.

‡ Smellie, Vol. 1. Book 3, Chap. 3, Sect. 2.

§ Exton's Midwifery, p. 5, Introduction.

" This poor woman, (says Mauriceau) with her infant in utero, died in twenty-four hours after the extreme violence which he (Chamberlen) had used towards her; and on opening her body after death, and making the Cæsarean section, which, as I have already stated, I was unwilling to do during her life, I found the infant and every thing else situated exactly as I had previously described, and the uterus entirely lacerated and pierced through in many places by the instruments which this physician had blindly used without introducing his hand."

It is singular, that in the only country where Chamberlen first disclosed his secret, viz. Holland, and where he made it known to Roonhuysen as early as 1693, the nature of it was not generally known until De Visscher and Van de Poll published a description of it in 1753, exactly sixty years afterwards; and even then the lever, as used by Roonhuysen, seems to have been a most imperfect instrument; and I am much inclined to doubt if this was the instrument which Chamberlen generally practised with. I am led to this supposition, from the fact that Palfyn of Ghent, after having made several journeys to London and Amsterdam, for the purpose of ascertaining, if possible, what was this celebrated secret, at last succeeded in obtaining so much information about it, that he was enabled to form the *tire tête*, which he presented to the Academy of Sciences at Paris, and which afterwards, with some modifications, became the forceps of Dusée and Butter.

This instrument consists of two blades, without *fenestræ*, which were introduced on each side of the child's head, and tied together at the handles without crossing; nor can I conceive that the result of Palfyn's inquiries (which could only have been made among those women who had been attended by

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* Chamberlen's Translation of Mauriceau, Chap. 17.

Chamberlen,) would have led him to make a double or two bladed instrument, if Chamberlen in his own practice had never used any thing but the simple piece of bent iron, which was produced by de Visscher and Van de Poll as the Roonhuysen secret. That he was in the habit of occasionally employing a lever, is proved by two of the instruments now under consideration; but from the result of Palfyn's inquiries, and from the appearance of several of the present instruments, it is evident that he most usually preferred the forceps.

To clear up this doubtful point, two questions naturally suggest themselves of considerable difficulty and interest. 1*st*, Is the flat bar of iron which was produced in 1753 as Roonhuysen's lever, the same instrument which Roonhuysen received from Chamberlen in 1693? And 2*dly*, Is this the instrument De Bruin received from Roonhuysen?

It is commonly supposed that the piece of bent iron, known as Roonhuysen's lever, and purchased by De Visscher and Van de Poll of Gertrude de Bruin, daughter of one of his pupils, was the instrument used by Chamberlen, and communicated by him to Roonhuysen. Several circumstances, however, concur to throw considerable doubt on this fact, and incline me to agree with Dr Bland,[*] that Roonhuysen received a double or two-bladed instrument from Chamberlen; but I know not upon what grounds he rests his supposition that Roonhuysen, finding the application of the forceps, or double lever, not very easy, had recourse to a single blade, and then, as Dr Bland expresses it, "making some alterations, formed a distinct instrument;" because the instrument which Rathlauw published in 1747, and which he had received from Van der Swam, a pupil of Roonhuysen, was very different to that described by De Visscher and Van de Poll, and commonly known as the Roonhuysen lever, being a forceps, whose unfenestrated blades were united at one extremity by means of a pin, something like the modern forceps of Assalini.[†] Rathlauw distinctly describes the instrument as the *blades* of Roonhuysen, one of which were passed up on each side the child's head, they were then brought together, and the head, "clavi modo impactum," was laid hold of and extracted.

It has been considered, I know not upon what authority, that Chamberlen, still further to conceal his secret, gave a different instrument to each of the Dutch physicians, Roonhuysen,

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[*] Med. Communications, Vol. ii.

[†] According to Haller, Bibl. Chirurg. Tom. ii. p. 386, De Visscher and Van de Poll mention Roonhuysen's instrument as *blades*. "Chamberlenium *Laminis* potius *Roonhuysianis* usum esse, quibus solis id parturienti auxilium adferri possit, quod non aliter adferri queat, &c."

Ruysch, and Bockelman, who purchased it of him; but this can scarcely be the case, because we find that Schlichting published the description of an instrument, which he had received from a pupil of Ruysch, and which exactly corresponds with the forceps which Rathlauw received from a pupil of Roonhuysen, so that it is evident they must have possessed the same instrument. Moreover, Titsing, whose name was given to the spatula or lever, which was considered to have been invented by Boekelman Junior, mentions, according to Haller, that Roonhuysen made use of two horn spoons, one of which he aplied to each side of the head.* Thus it will be seen, that wherever we find the instrument described as actually in Roonhuysen's possession, it is evidently a species of forceps; and I have no doubt that the horn spoons mentioned by Titsing, were nothing more than one of those numerous attempts at improvement, which the imperfect state of the instrument and the art demanded.

As respects the second question, there is, I believe, no proof whatever for supposing that the lever, which was called Roonhuysen's, was at all used by him, or was the instrument which John de Bruin received from him, because, according to Mulder, the lever seems to have been an instrument of still later date, having been invented by Plaatman, who, together with the above mentioned de Bruin, purchased the secret of Roonhuysen. We have no proof that the flat lever was this secret; every record which gives any information upon this point, proves decidedly that it was a double instrument, or, in other words, the forceps.

With regard to the instruments now under consideration, the circumstances under which they were found preclude all doubt as to their having once belonged to Dr Chamberlen. The house in which they were discovered, is known to have belonged to one of the family, and, moreover, a number of letters to some of the Chamberlens, were found with them.†

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* Bibliotheca Chirurgica, Tom. ii.

† It may be not uninteresting to some, to quote the circumstances under which these instruments were found, as related by Mr Cansardine in the Med. Chirurg. Transactions, Vol. ix. Part i.

"The estate of Woodham, Mortimer Hall, near Maldon, in Essex, was purchased by Dr Peter Chamberlen some time previous to 1683, and continued in his family till about 1715, when it was sold by Hope Chamberlen to Mr William Alexander, wine-merchant, who bequeathed it to the Wine Coopers' Company.

"The principal entrance is through a porch, the masonry of which being carried up with the building, serves as closets to its respective stories.

"Two or three years ago, a lady, with whom I am intimately acquainted, (and from whom I had the particulars) discovered in the floor of the upper closet a hinge, and, tracing the line, she saw another, which led to the obvious conclusion of a door. This door she soon found means to open. There was a considerable space between the floor and the ceiling below, and this vacancy contained divers empty boxes, &c.

On examining them, our attention is at once directed to several very interesting peculiarities, the most remarkable of which is, that all the specimens, both levers and forceps, are furnished with fenestræ, and thus at once bring us to a stage of improvement very superior to that which they had reached in the time of Roonhuysen.

It were much to be wished that some of the intermediate degrees of Chamberlen's improvements had been handed down to us, as then we should have been better able to estimate their progressive advance, and form a more direct comparison between the Roonhuysen forceps and the present instruments, which I think may fairly be looked upon as bearing Chamberlen's latest and probably most valuable improvements.

From the peculiar shape of the Chamberlen forceps, as used by Roonhuysen and Ruysch,—from the lacerations of the vagina, and even separations of the *symphysis pubis*, which, according to Titsing,[*] are said to have resulted from their application, and moreover from the work of Groenwelt, *alias* Greenfield,[†] viz. " *Tutus Cantharidum in Medicinâ usus internus*," wherein he supposes it to have been a *speculum uteri* from its effects, it is highly probable that at this early stage the instrument was not only used to extract the head, but also to dilate the passage.[‡]

In calling the attention of the society to the instruments now under consideration, I will begin with those which are most perfect, and which seem to have been actually used in practice by Chamberlen. I do this because the others are more or less incomplete or unfinished, and seem to be merely some of the numerous trials and attempts at improvement which the ingenuity of their inventor continually suggested him to make. The in-

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Among those was a curious chest or cabinet, in which was deposited a collection of old coins, trinkets, gloves, fans, spectacles, &c. with many letters from Dr Chamberlen to different members of his family, and also these obstetric instruments."

[*] According to Haller, (Bibl. Chirurg. tom. 2,) Titsing speaks, "contra *laminas* Roonhuysianas, matres lacerantes, pueros necantes, ad mortuos tantum fetus educendos esse inventas," and in another passage he says, " eo instrumento dimota fuisse ossa pubis, ut super se invicem moverentur, ruptam etiam vaginam."

[†] Groenwelt was called to the assistance of a woman in the year 1679, labouring under a suppression of urine, who had been delivered, he says, by Dr Chamberlen, " instrumento matricis speculo dicto adhibito." See Dr Bland's Essay in the Med. Communications, Vol. 2.

[‡] Rathlauw gives a description in his work of a forceps which he had invented nine years before, very similar to those described by Butter of Edinburgh, and his mode of applying them strongly confirms the opinion which I have just advanced. " Je conduis la premiere des lamelles à l'un des cotés de l'uterus, et la seconde de l'autre coté ; mais en même tems, s'il est besoin d'une *dilatation*, je prens une des lamelles en chaque main, et je fais, suivant l'exigence du cas *la dilatation* aussi grande qu'il est necessaire ; la tête etant ensuite prise dans les deux lamelles jointes ensemble, j'accouche la femme sans beaucoup de peine." (See Translation in Levret's Suite des Obs.)

strument which I first select are the large forceps, No. 1, and which present several interesting peculiarities. It is a straight forceps, the blades of which are fenestrated, but differ in several material points from those of Gifford, Chapman, and the French accoucheurs, the angle at which they diverge being very considerable, and, with the exception of Roonhuysen's forceps, as described by Rathlauw, and the *tire tete* of Palfyn, there are no forceps whose blades diverge in an equal degree until the time of Smellie. The curvature of the blades also differ from the above-mentioned forceps, being such that the point of greatest distance between them is half way between the lock and extremities, whereas in those of Chapman, &c. this point is much nearer to the extremities. The lock is that of a common scissors; into one blade a pivot is fixed, on which the other moves; the extremity of the pivot in this case has a screw upon it, seemingly for a nut to fasten the two blades together, but it is evident that it could never have been used, because its point barely, if at all, projects beyond the surface of the instrument. The handles have been made upon the same pattern with the rest of the instrument, which is of a very solid construction, weighing in all 1 lb. 5½ oz.

The great thickness and massive form of these forceps show that they are capable of exerting a very considerable degree of power, much more so than would be judged necessary or even admissible in the present day. In cases of *dystocia pelvica*, they could scarcely have been used, from the quantity of room which the blades must necessarily have occupied, and which would have still further diminished, by full one-third of an inch, a pelvis already too narrow.

The forceps, No. 2, are nearly a fac simile of those which I have just described, with the exception that they are one inch and three-tenths shorter, and of a much lighter make. The curve of their blades, and the angle at which they diverge, are very nearly the same, except that their extremities approach much nearer. The lock is of the same construction, except that, instead of the pivot in the shank of one blade for the other to move upon, each blade has a round hole through which a cord is passed, and this being wound round the two blades, they are then fastened together; the cord is about two feet in length, and consists of three strands braided together, thicker at the extremity where the knot is, and gradually tapering towards the other, which is pointed by means of a small tag.

The forceps, No. 3, differ from the two former, having the angle at which their two blades diverge smaller, and the point of greatest distance between them much nearer to their extremities. I know of no forceps, the blades of which are so far apart at this point, being three inches and two-fifths, so that the greatest breadth of the instrument when closed will occupy a space in the pelvis of three inches and four-fifths,—a degree of curvature, which, although it may prevent any chance of the instrument slipping, will at the same time render its application extremely difficult, and, under the slightest pelvic deformity, absolutely impossible. Were it not for the shortness of their handles, they would have been the longest forceps of all, the length of the blades exceeding those of No. 1. With respect to the lock and form of the handles, these are precisely the same as those of No. 2.

Nos. 4 and 5 are two levers, which, from their similarity to each other, may come under the same description. They are as pure a specimen of the lever as any with which I am acquainted, almost all the *vectes* of modern times being made to act rather as blunt hooks than as levers, and, in point of their curvature, bear a very exact resemblance to that which is known as Roonhuysen's. They have *fenestræ*, which are broadest at the middle instead of near the extremity, as is the case with the three pair of forceps already described. The blades are also much thinner; and there is a degree of finish which one does not perceive in the forceps, although it must be owned that these are far from being badly made.

The lever No. 4 terminates at its handle in a simple blunt hook. The handle extremity of No. 5 is also curved; but, instead of being blunt, it is pointed.

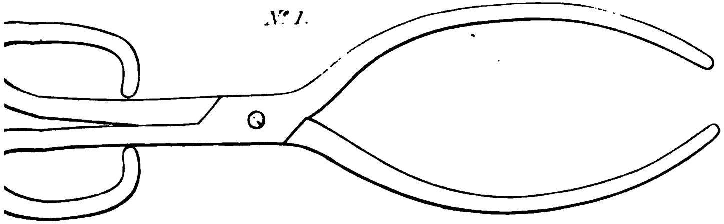
No. 6 is one side of a forceps which evidently was never completed. The blade is even longer than those of No. 3, and the handle much shorter, being merely a pointed hook. A depression for a corresponding blade shows where the lock was intended; but, although the head curvature of the blade has been given, the lower part is quite straight, and in an unfinished state.

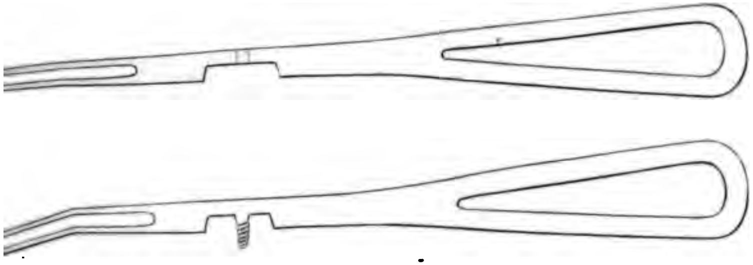
No. 7 is a curious specimen of Dr Chamberlen's ingenuity, and is certainly one of the most interesting among these instruments. It is an attempt to invent a new species of lock, by which the two blades may be brought together, and fixed with more ease than with the common pivot.

The instrument itself is in the roughest and most unfinished state, and is evidently merely a species of experimental sketch to ascertain its practicability. The *fenestræ* of one blade has one of its branches unattached at the lock, so that the shank of the other blade can be passed between them. A pivot with a screw upon it is then passed through a corresponding hole in each, and the two blades are thus secured together. Upon what a workman would denominate the male blade, is the remains of

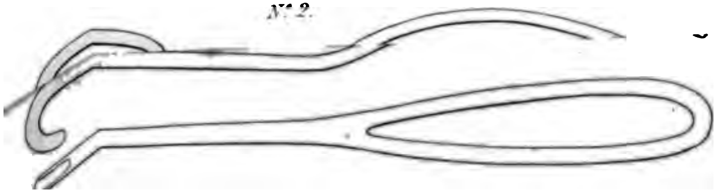
INSTRUMENTS DEVISED OR USED BY Dr. CHAMBERLEN.

No. 1.

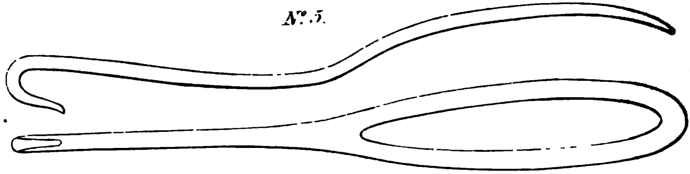




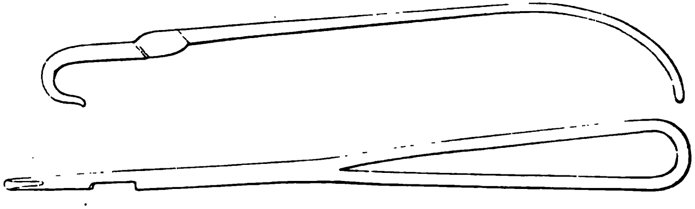
No. 2.



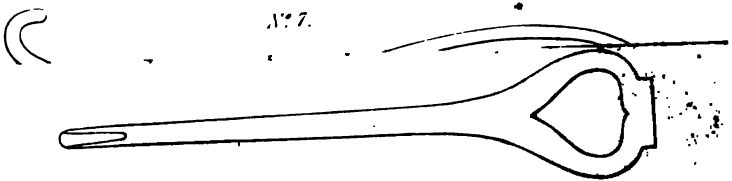
No. 5.



No. 6.



No. 7.



G. Aikman. Sculpt

some appendage, the use of which I am at a loss to conceive. It consists of a small cylindrical piece of bone with a hole in it, and through which a thread is passed several times, to fix it to the blade just where it locks.

The last of these instruments, No. 8, is, I presume, a species of sharp hook, the other extremity being flattened out and fenestrated, to permit of a firmer hold. I shall not detain the Society with describing a straight crotchet, with a blunt hook at one extremity and a sharp one at the other, because this has been evidently made by an instrument-maker; nor does it materially differ from many which are used at the present day.

A fillet attached to two pieces of whalebone as handles, and covered with red satin, was also found with these instruments, but it presents nothing of peculiar interest.

Proportions of Dr Chamberlen's Instrument in English inches.

	Length				Distance							
No.	of the whole.	of the blade.	of the handle.	Angle at which blades diverge.	of point of blade from lock	Greatest distance of blades.	of spot where blades are most separated from their points.	of blades at their points.	Greatest breadth of the blades.	Distance of greatest breadth from their points.	Length of the fenestræ.	Greatest breadth of fenestræ.
1,	$12\frac{19}{20}$	$7\frac{5}{20}$	$5\frac{14}{20}$	36°	$8\frac{5}{20}$	$3\frac{1}{10}$	$3\frac{13}{20}$	1	$1\frac{15}{20}$	$\frac{9}{20}$	$4\frac{9}{10}$	$\frac{17}{20}$
2,	$11\frac{12}{20}$	$7\frac{5}{20}$	$4\frac{7}{20}$	$63\frac{1}{2}$°	$7\frac{5}{20}$	$2\frac{19}{20}$	$3\frac{5}{20}$	$\frac{7}{10}$	$1\frac{13}{20}$	$\frac{15}{20}$	5	$\frac{19}{20}$
3,	$11\frac{13}{20}$	$7\frac{4}{20}$	$4\frac{5}{20}$	59°	$8\frac{5}{20}$	$3\frac{4}{10}$	$2\frac{13}{20}$	$\frac{8}{10}$	$1\frac{6}{10}$	$\frac{19}{20}$	$4\frac{19}{20}$	$1\frac{1}{20}$
4,	$11\frac{10}{20}$								$1\frac{1}{2}$	$1\frac{9}{10}$	$5\frac{11}{20}$	$\frac{7}{10}$
5,	$11\frac{15}{20}$								$1\frac{11}{20}$	$2\frac{7}{20}$	$5\frac{5}{20}$	$\frac{15}{20}$
6,	$12\frac{1}{10}$								$1\frac{5}{10}$	$1\frac{2}{10}$	$5\frac{19}{20}$	$\frac{9}{10}$
7,	$11\frac{7}{10}$	$7\frac{9}{20}$	$4\frac{5}{20}$		8	$2\frac{4}{10}$	$2\frac{5}{20}$		$1\frac{19}{20}$*	$1\frac{3}{20}$	$8\frac{3}{10}$	$1\frac{1}{2}$
									$1\frac{15}{20}$†	$1\frac{4}{10}$	$4\frac{19}{20}$	$1\frac{3}{10}$
8,	$10\frac{5}{20}$								$2\frac{5}{10}$	$\frac{9}{10}$	$1\frac{11}{20}$	$1\frac{11}{20}$

* Open blade. † Closed blade.

ART. IX.—*Case of Anomalous Affection of the Nervous System, but approaching to the* Chorea rotatio *of Mason Good*.

By C. MARSHALL, Esq. Surgeon, Forfar.

NOVEMBER 8, 1832.—I was requested to visit Jane Stewart, and found her in bed in a state of insensibility. It was with difficulty I could learn from the attendants of the patient any distinct and connected account of her previous history. Not quite thirteen years of age, she has never menstruated till 1831, when she suffered from small-pox and measles. She was a girl equally remarkable for her strong constitution and obstinate ungovernable disposition. From that period her health remained imperfect.

Towards the commencement of April 1832 she began to complain of pain in the head, with considerable uneasiness in the bowels, for which she had medicines prescribed. Deriving no benefit from them, she gradually became worse; suffering from almost constant headach, thirst, vomiting, and irregular bowels. Her eyes were not much affected by light. She complained sometimes of dimness, and was annoyed by the slightest noise. She was at no time delirious, but in full possession of her mental faculties. Soon after the medicines were administered, she became unable to sit up, and lost the power of standing, but not the faculty of moving her limbs. Several months elapsed, during which there was little alteration of the symptoms.

Four months from the commencement of her illness she became speechless,—continuing silent six weeks; during which period her intellect, and organs of sensation and motion, remained unchanged. Recovering speech gradually, as an infant learns to articulate, her vision became permanently impaired—discerning objects indistinctly. Anything brought near her eyes, or in contact with her person, she started and shrunk from it as if affrighted. Delirium next supervened, lasting eight days; and was succeeded, on the morning of October 12th, by paroxysms, which recurred eight or ten times in the course of that day. Since then they have increased rapidly, both in violence and number, amounting now to fifty or sixty during the twenty-four hours.

A paroxysm consists of two stages, which I may distinguish by the terms active and passive, with an intermission formerly, but not now, at all times, distinct. The passive stage resembles syncope; the pulse, however, remaining unaffected. Insensible to all external impressions, she continues during a period of time varying from three minutes to as many hours. Respiration, previously weak, but full as in sleep, gradually becoming full and sonorous, indicates the approach of the active stage, characterized by a series of actions as difficult to be described as it is painful to behold them. Springing from her recumbent posture, so forcibly sometimes as to pitch herself from the bed, she rests for a moment on her knees; then, making for one corner of the wooden bed, she dashes forcibly against it, striking violently on her head; assailing in like manner the other corners in quick succession. Then throwing herself on her back, screaming at the pitch of her voice, she beats for a short time with her feet rapidly against the panels of the bed, so powerfully as more than once to break them down, rendering it necessary to replace them by stronger ones. This routine of movements repeated several times, varied occasionally by being milder and fewer, or by the addition of others; such as, tearing her clothes, not unfrequently so effectually as to leave herself naked, or tossing at her attendants or window near her, any moveable object within her grasp, constitutes the only remarkable feature in the progress of the stage, which varies from five to ten minutes in duration. Every attempt made to restrain her she strongly resisted. Fearing that some serious accident would result from the violence of her actions, her father one day attempted to hold her; since that time her left arm remained in a state of permanent contraction. During the active stage, the enjoyment of her intellectual faculties is limited; her motions are at one time apparently involuntary; at another time they seem to be in some measure under the influence of her will; she replies to no questions; her former acquaintances or nearest relations she never recognizes. Excepting that she is unable to stand, or use the left arm, her moving powers are in full vigour. The organs of sensation, so far as hearing, smell, taste or touch are concerned, seem perfect; voice somewhat altered; vision indistinct.

During the first fourteen days from the commencement of the paroxysms, a distinct intermission, varying in length from a minute to an hour and a-half, succeeded regularly the active stage, becoming gradually less frequent and shortened in duration, excepting one which continues still to occur every morning between the hours eight and nine; the intermissions are not now perceived. While free of the paroxysm she is sometimes perfectly tranquil; at other times she sobs and weeps, appearing restless and discontented, but complains of nothing. So sensitive to external impressions is she, that touching her, the sound of a person's voice, or the smell of food, is sufficient to renew the paroxysm. Her mother is of opinion that she is at no time in possession of her mental faculties.

Such is a brief history of the case previous to my first visit.

Till the 17th the symptoms continued much the same as described,—the violence of the paroxysms, however, with the strength of the patient, progressively declining. On this day, recovering from the passive stage, after making several efforts to get up, she sunk down seemingly exhausted. She now lay constantly moaning, with the eyes shut, the jaws locked, the upper extremities contracted; the pulse about 30, and scarcely perceptible; the urine passed involuntarily, and the bowels confined. In this condition she continued till December 23d, when, several hours after the administration of a small quantity of soap in the form of clyster, she commenced screaming, and seemed to suffer much. The pulse was then 110. Her bowels, having remained upwards of five weeks unmoved, now acted with much pain. She partially recovered the use of both hands, and evinced slight symptoms of intelligence. Till the fatal termination on the 31st, her screams were incessant, so long as pressure was not applied to a particular part of the abdomen, which, seeming to afford her much relief, was continued night and day. She died much emaciated.

In reference to the treatment, nothing more than is mentioned had been done by the medical man who first saw her. Indeed, several months previous to my first visit, his visits had been discontinued. The state in which I found her, weak and unable to swallow, and the nature of the paroxysms precluding the application of anything in almost any form, rendered it impossible for me to do much. My treatment accordingly was limited to rubbing of tartar emetic ointment along the spine, and administering several clysters.

Not the least remarkable circumstance attending this disease, was the long continued abstinence from food. From the commencement of her illness the quantity of food consumed by her was exceedingly small; but from the end of September, when she became delirious, till the 31st of December, the period of her death, she did not require so much nutriment as is necessary for the support of an infant for one day. In fact, during the last seventy-seven days of her existence, excepting about a cupful of water every twenty-four hours, and the clyster on the 23d, nothing in the shape of nourishment was received by her. So susceptible of the smell of food was she, which never failed to produce retching, that nothing of that kind could be brought, much less cooked, within the house for several weeks previous to her death.

Inspection.—Carefully examining the different parts of the brain and spinal chord, we were unable to detect any morbid alteration of structure. Slight vascularity in different parts of pia mater, and in the substance of the brain and cerebellum existed, with about six ounces of fluid, which we were able to collect from the ventricles and sheath of the chord.

The thoracic viscera were sound.

The upper portion of the alimentary canal was healthy; the lower portion, including the large intestines, contained a small quantity of feculent matter, and its peritoneal coat was tinged of a deep red colour, presenting marks of recent inflammatory action. The other abdominal and pelvic viscera were free of disease.

Without indulging in any remarks regarding this affection, I have confined myself to giving a history of the case, as brief as the nature of the subject would permit.

Its resemblance to some of the violent forms of *chorea* in the early part of the paroxysms is pretty manifest. But this resemblance diminished and disappeared entirely towards the close, when the symptoms indicated a most intense affection of the cerebro-spinal axis.

June 24th 1833.

ART. X.—*An Account of the Topography, Climate, and present State of the Town of Torquay (Devonshire), with reference, particularly, to its suitableness as a place of residence for Invalids.* By JOHN COLDSTREAM, M. D. Leith.

MATERIALS for the following account were collected during a residence in Torquay, from the end of October 1832 till the middle of April 1833; and they have been brought together for publication, under the conviction that a more particular description than has yet appeared is awanting, to enable medical practitioners to estimate aright the true importance, as a remedial measure, of a prolonged residence at this place. The following notices can be considered only as contributions towards such a description; for more extended researches and observations than have yet been made are required, before the characters of the locality, especially as regards its climate, can be given with precision.

Torquay is situated around a small cove at the north-west angle of Torbay, opening to the south-west. The cove runs inland about 250 yards, and is about 200 yards wide. From its mouth, almost the whole of Torbay is visible. Berryhead, the south-western boundary of the bay, bears by compass SSE. distant nearly six miles. Between the points of south south-east and south-east by east, a part of the British Channel is seen. In every other direction, the horizon is bounded by land. To the south-west the nearest land is Rondham Head, about three miles off. Westwards at the distance of a few hundred yards, is the shelving beach of Tor Abbey, between which, and

Berry-Head, the shores of the bay are formed by low hills of various elevations (none exceeding 500 feet), for the most part cultivated to their summits, and adorned with orchards and hedge-rows, presenting a scene of singular beauty and richness. Landwards, from the same point of view, the horizon is bounded by the heights immediately surrounding the cove of Torquay. These heights are three in number, nearly equal in elevation, (180 to 200 feet) and similar in general features. Between them run two tortuous valleys, one towards the east, the other towards the north. It is on the shores of the cove, along the slopes of the hills, and in the gorges of the valleys, that the town is built.

The three small *hills* rising from the sides of the cove are, in some places, steep, almost precipitous; in other places their declivities are gentle. Their summits are crowned with woods of fir, from twenty to sixty years old. That which bounds the head of the cove (Braddon Hill) is the western extremity of a great mass of high land, the highest in the neighbourhood, whose general axis lies nearly east and west, running on towards the sea-cliffs of Babbicombe and Petit Tor, between two and three miles from Torquay. The highest point of this land, (which is not more than a quarter of a mile from the shore of the cove) I guess to be elevated about 250 feet. It is under cultivation. All the hills are composed of limestone. In several places the strata are well exposed by artificial sections. From these it appears that the general dip of the strata is to the south-west, at an angle of about 40°; but on the sea-shore the strata are almost vertical. They contain, in common with most of the limestones in this quarter, abundance of the fossil remains of madreporites, astreites, encrinites, and several shells. Immediately to the south-west of Waldon Hill, (which rises on the northwest side of the cove) a considerable extent of the shores of the bay is formed by new red sandstone, in nearly horizontal strata; and at Meadfoot Bay, (one mile east from the cove) the limestone rests upon an argillaceous slate and old red sandstone, dipping to the south.

The *valleys* are narrow, somewhat tortuous, and rise with a gradual ascent from the shores of the cove. That to the east terminates in an elevation of about 140 feet, nearly a mile from Torquay. The water-courses are small. There is very little marshy ground in either valley; and, perhaps, not more than twenty acres of arable land in both. A few large trees grow in that to the east, and shelter some houses that would otherwise be much exposed to the east wind.

The *soil* almost every where around the cove is a rich clayey loam, of the same reddish colour as that of other parts of South

Devon. In some places it is of uniform quality for eight or ten feet below the surface.

Vegetation is luxuriant; a stranger is particularly struck with the large and strong growth of the evergreens.

The following plants are so abundant, that they may be said to characterize the district.

Arum maculatum,
Clematis vitalba,
Cotyledon umbilicus,
Crithmum maritimum,
Epilobium hirsutum,
Euphorbia Portlandica,
Hedera helix,
Hippuris vulgaris,
Hypericum perforatum,
Iris fœtidissima,
Ligustrum vulgare,
Lythrum salicaria,
Ophrys apifera,
Rubia peregrina,
Smyrnium olusatrum,
Spiræa filipendula,
Ulex Europæus.

In common with the whole region of South Devon, the neighbourhood of Torquay is very rich in fine mosses and lichens. In 1833, on the 7th of February, snow-drops and crocuses were in full blow in the gardens, and *Ficaria ranunculoides* appeared in the meadows; on the 19th of February, the catkins of the willow were in perfection; and on the 27th, daffodils and the perennial mercury. The following plants are considered, in the gardens around Torquay, as hardy exotics, and usually are allowed to remain in the open border during winter.

Azalea Indica,
Aster Capensis,
Agave Americana,
Bignonia Pandoræ,
Cactus speciosus,
Calceolaria plantaginea,
———— corymbosa,
Cassia Capensis,
Citrus medicus,
Coronilla glauca,
Dracocephalum Canariense,
Fuchsia coccinea,
Magnolia conspicua,
Mespilus Japonica,
Myrtus communis,
Laurus camphora,
Metrosideros floribunda,
Pœonia arborea,
Punica granatum,
Salvia purpurea,
Verbena malendris,
Yucca aloifolia,
Yucca gloriosa.

The greatest extent of *cultivated soil* in the immediate vicinity of Torquay is on the slopes and summit of the high land behind Braddon's Hill. This, although it be under the same bad system of husbandry as is generally pursued in Devonshire, bears rich crops of all kinds. Forty bushels of wheat per acre are sometimes obtained, and thirty bushels form an average crop.

Water is conveyed to the town in pipes from two sources; one of which is an open reservoir in the eastern valley; the other, an enclosed spring near the summit of Braddon's Hill. The water holds much lime and some iron in solution; so that many of the inhabitants collect and use rain-water for domestic purposes. There are several *springs* in the neighbourhood; none very abundant, or otherwise remarkable. The temperatures of some of these vary a little, according to the temperature of the atmosphere. But one spring is very steadily at 52° Fahr. and

and was so even during the coldest weather of the season, (1832–33,) when the temperature of the air ranged from 29° to 47° for eight days, and was 42° at the time of observation. This spring issues from the base of Waldon Hill, between high and low water-mark, at Tor Abbey Sands.

Two very small *streamlets* empty themselves into the cove,—one from the eastern, the other from the northern valley. The courses of these through the town are concealed by mason-work.

At high water, *the sea* runs up the cove of Torquay to a quay situated about 240 yards from its mouth. At this quay, there is a depth of six or eight feet. Low water-mark of spring-tides is just at the mouth of the cove. The whole rise of the highest tides is about twenty feet. The greater part of the bottom of the cove is muddy, particularly seawards; other parts are gravelly. The common-sewers of the town empty themselves into the harbour; and the filth which they bring down frequently remains scattered over the bottom at the recess of the tide. This is particularly the case when there is little water in the streams flowing into the cove. In summer, it is said, disagreeable odours are perceptible on the quays all around the harbour. But this evil is likely soon to be remedied. Almost all the shore is occupied by substantial stone quays; but, at the west side of the mouth, there is a small extent of natural beach, which is sandy. The mouth of the harbour opens towards the west, and is flanked by two piers; one of which completely shelters it from the south-west. Outside of the harbour, the depth of water increases gradually towards the mouth of the bay; but within a hundred yards of the shore, vessels can ride in safety. As the cove is open only to the west, in which direction the beach is scarcely more than two furlongs distant, its surface is but little agitated even by the most violent gales. It is only when such occur (perhaps three or four times in the course of the winter,) that any spray rises from the waves in the cove; and even outside of the cove, there is very seldom a heavy sea. The east and south-east are the only winds which raise much wave in Torbay, and from these the neighbourhood of the cove of Torquay is sheltered by the adjacent promontories, and by that of Hope's Naze on the north of Meadfoot Bay.

The surface of the land immediately around Torquay, and indeed the whole region between the rivers Dart and Teign, (about eleven miles in length, by seven in breadth,) is hilly, but few of the elevations exceed 300 feet; the ascents are frequently abrupt, and even precipitous; but, in general, the declivity is sufficiently gentle to admit of the soil being cultivated. The vales are narrow; there is a paucity of water-courses, and very little marshy ground. The subjacent rocks are chiefly of limestone and red sandstone; the former to the north and east, the latter to the south and west of Torquay. Much of the limestone is highly crystalline, and is wrought extensively as marble. It contains some large caverns, of which that named Kent's Cave, about a mile to the east of Torquay, is the largest that has been explored. It is about 600 feet in height, from three to thirty feet in breadth, and four to twenty in height. From its floor bones have been dug similar to those found in the caverns of Yorkshire and other districts. There is little water in this cave. The temperature of a deep pool at its furthest extremity was 52° in the end of March.

The *scenery* met with in traversing this fine country is very beautiful, and, in consequence of the great number of small elevations, very varied within short distances. In some directions, it is scarcely possible to advance even a few yards without perceiving some new feature in the landscape, or having its character suddenly and entirely changed. This is particularly the case about the cove of Torquay itself.

Everywhere in this district *vegetation* is vigorous. In many of the vallies, there are large orchards. All kinds of crop are raised; but a smaller proportion of turnip than elsewhere, on account of its having been found that that crop is particularly liable to suffer from the ravages of the turnip-fly around Torbay. It is said that almost every species of phenogamous plant hitherto found in Britain may be obtained within the bounds of Devonshire; and of these, a large proportion grow around Torquay. Marine vegetation is no less rich and varied than that of the land. Almost all the British Algæ have been found in Torbay,—many species seem to be peculiar to the locality,—and others occur in greater beauty than they do elsewhere; * but allowance must be made for the assiduity with which the productions of the bay have been investigated by one of the most ardent of British naturalists, Mrs Griffiths, who has long resided at Torquay.

Neither the terrestrial nor the aquatic *animals* of this district present any peculiarity calculated to fix the attention of the medical topographer. It may be mentioned, however, that poisonous reptiles are not unknown. In summer, the adder is occasionally seen upon dry banks, chiefly near the summits of the low hills. The smaller birds of prey are rather abundant. The green woodpecker also haunts the fir plantations around the cove. Sole and turbot, hake, bream, dory, and mullet, are, along with mackarel and whiting, the common fish of the markets. Oysters are abundant and good. Torbay has long been known as the locality of many molluscous animals and zoophytes, scarcely to be met with on other shores of this island; and many of the more common species occur here in great beauty, owing, perhaps, to their being so well sheltered from the effects of storms. All the shells of the genera Pholas, Hiatella, Sphenia, &c. which burrow in the rocks, are plentiful, and, along with the following common mollusca, crabs and zoophytes, tend to characterize the shores.

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* *Chondrus crispus*, from which so excellent a demulcent mucilage may be prepared, grows abundantly on the littoral rocks, near Torquay.

Sepia officinalis,
Aplysia depilans,
Eolida papillosa,
Donax trunculus,
Cardium aculeatum,
——— tuberculatum,
Patella vulgata,
Trochus crassus,
———- zizyphinus,
Turbo rudis,
Murex erinaceus,
Pleurobanchus plumula,
Porcellana platycheles,
Portunus puber,
Galathea strigosa,
Holothuria dissimilis,
Asterias aurantiaca,
Actinea sulcata,
Jania rubens,
Spongia sanguinea,
Flustra avicularis,
Serialaria lendigera,

besides many others which are common to most parts of the British coast.

The nearest range of the Dartmoor hills is about fifteen miles from Torbay; their outline viewed from the south and east is rather smooth. Torquay is twenty-three miles from Exeter, and thirty-three from Plymouth. The nearest market town is Newton, seven miles distant. There is no considerable village near Torquay, excepting Tor, or Tormohun, less than a mile to the north-west. It contains about 800 inhabitants. Its site is elevated sixty or seventy feet above the sea level. Most parts of it are partially sheltered by rising grounds, or by large trees, from the direct action of the prevailing winds. The small vallies of Upton and Westhill, to the north-west of Tor, are, perhaps, more completely and more immediately surrounded by heights than any others in this quarter. There are streamlets in both, whose banks are not marshy. As yet there are only a few scattered cottages in these valleys. The locality of Chelston, a hamlet about a mile west of Torquay, has been pointed out as one of the most salubrious spots in this neighbourhood. It is situated on the side of a hill, sloping to the east and south.

The *climate* of this part of Devonshire, and, in particular, of the cove of Torquay, is considered by most persons who have resided for some time in different places on the south and south-west coasts of England, as one of the mildest and most steady they have any where met with in that quarter; and thus they so far corroborate the opinion on which the high reputation of Torquay, as a good winter residence for invalids, is founded. But observations sufficient to enable us to characterize the climate with precision, and to compare it with that of other places, are still awanting. The only data of which we can avail ourselves in attempting to estimate the mean temperature of the place, and its daily and monthly changes, are, 1. The monthly averages of observations made during the winter of 1827–28, and inserted in the appendix to Dr Clark's work "On the Influence of Climate." 2. The results of similar observations made during the winters of 1829, 1830, and 1831, by Mr Blewitt, and published in his "Panorama of Torquay," (1832.) 3. A few observations of the temperature of springs in the vicinity. 4. A journal of the temperature at noon, kept during the winter 1832-33.

I. With regard to the *annual mean temperature* deducible from these data, it can be but a mere approximation to the truth to which we can attain, as the observations from which the yearly temperature must be calculated were made only during the winter and spring months. The mean of the observations recorded in Dr Clark's work is 48°.44. But as it is not stated at what *hour* the thermometer was observed, we cannot estimate the annual mean from them. Mr Blewitt's observations give for the mean temperature of six months, from November till April inclusive,

In 1829–30,	-	46°.03	Mean, 46°.43.
In 1830–31,	-	46 .13	
In 1831–32,	-	47 .15	

Now, as these means were deduced from observations made at 8 A. M., and 2 P. M., they must give a result higher than the true mean by about half a degree (.55).* This reduces the mean temperature of the six cold months to 45°.88. If we compare this with the observed mean temperatures of the same season, and of the whole year at other places in the same quarter, (at Penzance, for instance, where good observations have been made, and where the winter temperature is 46°.33, the annual, 52°.16,) we obtain 51°.65 as the mean temperature of Torquay. The observations formerly alluded to of the temperature of the springs around Torquay, give 52° as that of the most stationary. None were found under 50°, and none above 52°, and the average of all the observations was 50°.93.

The daily observations made at noon during the season 1832–33, gave the following monthly means. November, 52°.38; December, 50°.24; January, 44°.40; February, 49°.28; March, 46°.02.

The temperature at noon is found to be about two degrees and a-half above the mean of the day. From the above numbers, reduced according to this ratio, we obtain for the true monthly means: November, 49°.87; December, 47.°73; January, 41°.89; February, 46°.77; March, 43°.51; and for the mean of the

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[*] Brewster on the Results of the Leith-Fort Hourly Observations. Trans. Roy. Soc. Edin. 1826.

season, 45°.97. This, compared with the Penzance results, gives 51°.77 as the annual mean. It is not unlikely, therefore, that 51°.70 is very nearly the mean temperature of Torquay.*

II. *Daily Range of Temperature.*—The results deducible from the observations contained in Dr Clark's work, "On the Influence of Climate," and those by Mr Blewitt, are arranged in the following table :—

	November.		December.		January.		February.		March.		April.	
	Mean.	Max.	Mean.	Max.	Mean.	Max.	Mean.	Max.	Mean.	Max.	Mean.	Max.
1827–28,	5°	10°	5°	12°	5°	13°	6°	16°	8°	13°	11°	12°
1829–30,	5	25	4	15	3	11	5	12	8	19	7	26
1830–31,	4	14	5	12	3	14	4	8	6	18	7	18
1831–32,	5	20	4	9	1	11	1	13	6	14	8	16

Hence it appears, that the mean daily range is little more than 4°.

III. *Monthly Range of Temperature.*—The observations above referred to give the following results under this head :—

	Nov.	Dec.	Jan.	Feb.	March.	April.	Mean.
1827–28,	29°	18°	25°	29°	23°	26°	25°
1829–30,	26	24	17	34	30	36	28
1830–31,	26	29	22	31	27	25	26
1831–32,	27	22	20	23	30	31	25

The observations made *at noon* during 1832–33, give the following monthly extremes :—

1832–1833.	Minima.	Maxima.	Range.
November,	45°.5	59°.5	14°.0
December,	46 .0	56 .0	10 .0
January,	39 .5	49 .5	10 .0
February,	44 .0	54 .5	10 .5
March,	40 .5	52 .5	12 .0

IV. *Daily Change of Temperature.*—The mean difference between the temperature of successive days in the cold season, may be stated at about 2°.7. The greatest difference observed at noon in 1832–33, was 6°. The coldest weather of the same season occurred between the 9th and 14th of March, when the lowest temperatures indicated by the register thermometer ranged between 31° and 36°. The temperature at noon was never lower than 41° at this time; but in January it was observed at 39°, which was the minimum of the season at that hour.

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* Dr Scully of Torquay has, for several years past, made meteorological observations daily with great care, by means of excellent instruments; but he has not yet calculated their results. To Dr Scully, as also to Dr Denmark, physician to the Fleet, and to Dr Barry, both of Torquay, the author has to acknowledge himself indebted for some of the facts mentioned in this paper.

It is always satisfactory to determine *the temperatures of the interior of houses* in places resorted to by invalids. In this view, the following results of daily observations of the temperature of a bed-room at 7 A. M., in which no fire was kept, may be found interesting. They form good indications of the temperature to which the residents are generally exposed. The first of the two following tables contains the weekly means of these observations in each month, and the second the greatest differences between the temperatures of successive days in each week.

1832–1833.	1st Week.	2d Week.	3d Week.	4th Week.	Mean.
November,	53°.43	49°.62	51°.52	52°.37	51°.73
December,	50 .07	50 .00	49 .93	49 .50	49 .87
January,	45 .21	46 .84	43 .06	42 .81	44 .84
February,	49 .85	50 .92	45 .92	46 .78	48 .36
March,	48 .14	41 .12	45 .06	42 .07	44 .09

1832–1833.	1st Week.	2d Week.	3d Week.	4th Week.
November,	5°.5	4°.	2°.7	2°.
December,	5	5	5 .5	5
January,	3	2	1	3 .5
February,	4	2	4 .5	2 .5
March,	3 .5	6	3	2

The humidity of the air in this quarter seems to be less than, from the character of its locality, one might expect. It is observed, that iron exposed to the atmosphere without covering does not oxidate so quickly as elsewhere. Fog is rarely seen. It appeared on two days only during the winter 1832–33; and daily observations of the dew-point during the same season shewed that the air is seldom saturated with moisture, and that even in December and January it is sometimes very dry. It is not known that any series of hygrometrical observations has been made at Torquay, excepting that just alluded to. They were made with care; but on account of the hygrometer having been placed unavoidably in a situation where it was likely to be surrounded by air drier than the circumambient atmosphere, and where it was exposed occasionally to a reflection of the sun's rays from a whitened wall thirty feet distant, it is not presumed to deduce from them any definite conclusions with regard to the real average degree of moisture of this climate. The general results, however, may be stated. The observations were made at noon by means of Jones's thermometrical hygrometer. In the following table the monthly means only of the temperature of the air and of the dew-point at noon are given.

1832–1833.	Temperature of Air at Noon.	Temperature of Dew-point.	Difference.
November,	52°.38	43°.80	8°.58
December,	50 .24	42 .52	7 .72
January,	44 .40	36 .59	7 .81
February,	49 .28	40 .67	8 .61
March,	46 .02	34 .76	11 .26

After making allowance for the observations having been made at an hour when the air is generally drier than at any other, and also for the false indications to which the construction and position of the instrument may have given rise,* there still seems to be reason for supposing that there is less moisture generally present in the atmosphere of Torquay than in that of many other parts of Britain. The mean difference between the temperatures of the air and the dew-point at London, during the same five months which furnished the observations at Torquay, is only 3°.57, according to the results obtained by Mr Daniell in 1820–22.†

The quantity of rain which annually falls at Torquay has not yet been ascertained. And, indeed, to obtain a true measure of it will be found difficult; for there are very few positions within the cove where a guage could be placed so that it might, at once, be conveniently examined, and be beyond the shelter of houses, woods, and hills. Perhaps the least objectionable situation is at the end of the pier. Rain fell on seventy-four days, in 1832-3, from November to March inclusive; on fifty-two of these heavily; and on three days snow fell, but was immediately dissolved. The following are the numbers of the wet days in each month: in November, twenty; December, seventeen; January, ten; February, twenty; March, seventeen. It is an opinion generally held amongst the residents, that less rain falls at Torquay than in other parts of South Devon; and some persons of intelligence, and accustomed to observation, state that they have frequently seen large rain-clouds, coming from the south, divide before reaching Torbay, one part going up the valley of the Dart, the other passing on towards the valley of the Teign, thus avoiding Torquay altogether. Indeed, its situation, midway between these two river-courses, is supposed by many to contribute greatly to the dryness of the locality. But this idea, as well as that which imputes a similar effect to the limestone rocks (with their nearly vertical strata,) on which the town is built, seems to require more distinct proof than has yet been adduced.

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* The instrument used in the above observations, gives indications pretty nearly corresponding to those obtained by Dalton's method. But some such hygrometers have been found by Mr Adie (Edinburgh Journal of Science, 1828,) to give the temperature of the dew-point nearly four degrees below that indicated by Dalton's method. From some trials to which the one used at Torquay has been subjected, it appears probable that in general its indications are not more than one degree below the true dew-point. Nevertheless, the circumstance of its not being perfectly accurate, taken along with the objectionable position of the instrument, must to a certain extent diminish the value of the observations.

† Daniell's Meteorological Essays.

No register of *the direction of the wind* has been published. It is generally supposed, however, that, in all seasons, the wind blows from the west and south for a longer time than from the east and north. But it was otherwise during the winter 1832-33, when on seventy-three days only the wind blew from points between S. E. and W., and on seventy-eight days from those between E. and N. W., both inclusive. These winds were distributed amongst the several months in the following proportions:

	Wind.		Days of
1832, 1833.	S. E. to W.	E. to N. W.	strong gales.
November,	17 days	13 days	12
December,	19	12	10
January,	7	24	3
February,	20	8	12
March,	10	21	3

By the "days of strong gales" in the above table, are meant those on which, irrespective altogether of the temperature, a delicate invalid could not have gone abroad with comfort. The most boisterous gales were from the south-west. One of these (on the 19th and 20th of February,) was severely felt, and proved most destructive all along the south and west coasts of England; but Torquay sustained little damage. The blasting of the east wind, so remarkably baneful to vegetation in spring on the north-east coasts of Britain, is sometimes experienced here; and its peculiar chilling effect is sensibly felt, although not to the same degree as in Scotland. The greater part of the town, however, is well sheltered from its direct action.

In estimating the advantages which this locality possesses as a place of residence for invalids, the power of the sun's rays, and the concentration of their effect within the cove by the sides of the bounding hills, must be taken into account. Thermometrical indications can give no just idea of the importance of these to the invalid. But it is evident that they tend to produce a local atmosphere in which he may take exercise out of doors, with safety and comfort, on many more days than he could, in the same season, in other places less favourably circumstanced.

It may be proper to add here a note of the number of days in each month of the season 1832-33 on which it appeared to the writer that an invalid, able for some degree of exercise, and not in the last stage of pulmonary disease, might have taken foot or horse exercise without injury. November, twelve; December, sixteen; January, twelve; February, eight; March, thirteen.

The population of the parish of Tormohun in 1831, was, according to the census, 3582. Of these there were probably about 2500 resident in Torquay. The number has been increased since 1831, but not considerably. The 3582 individuals composed 629 families, of which 28 were engaged in agriculture, 282 in trade and manufacture, 316 consisted of the wealthy residents and of visitors. There were 1583 males, and 1999 females. Of the adult male population there were, professional men and merchants, 64, agricultural labourers, 36, general labourers, 45, masons, 24, carpenters, 16, sailors, 10, &c.

The population of the parish has been more than quadrupled within the last thirty years. The increase has been chiefly in Torquay since about 1810. There were 1925 inhabitants in 1821. The annual number of baptisms varied from 41 to 64 between 1813 and 1820, and from 67 to 107 between 1820 and 1830; within the latter period there were from 12 to 35 marriages annually. During eighteen years preceding 1830 there were 582 burials within the parish, of which 47 were of persons above 80 years of age, and 5 above 90. One individual was 95. Of the same number, 93 were of strangers. But this does not indicate the total number of invalids who have died at Torquay, as the bodies of many are removed for interment to the places of their former residence. The largest number interred in a single year was 11, (in 1821.) Of 40 strangers interred in Tor burial-ground, 22 were males between the ages of 15 and 43, and 18 females between 17 and 44. The average of their ages is 28. In 1821, the total mortality was to the population in the ratio of 1 to 48.5, and in 1830, 1 to 64.25.*

That fair deductions may be drawn from the above statements, it is proper to remark that drunkenness is said to be a very prevalent vice amongst the labouring classes, and that the domestic servants (who are very numerous) too frequently live in habits of luxurious indulgence and inaction. There is no other peculiarity in the mode of life of the inhabitants which seem to demand notice here.

Torquay is said to be "wholly exempt from endemic diseases; intermittent fevers, and the severe forms of typhus are unknown; low nervous and continued fevers are rare and seldom fatal; and inflammatory affections are comparatively mild."* Such is the universal testimony of the present medical residents, some of whom have practised in Torquay for many years past.

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* Most of the above facts were obtained, through the kind attention of the Rev. Mr Gee, the present incumbent of the parish, from an abstract of the parochial registers.

With regard to the sanatory effect of the climate on invalids; it is a general remark and complaint that so large a proportion come to the place too late for the favourable action of any remedial measure, that its restorative influence is very seldom fairly tried. But several persons from distant parts of England and Scotland, affected with pulmonary disease, are to be found resident here, who state that in no place do they spend the winter so comfortably as at Torquay; and others may be found who have been restored to perfect health since coming hither, after having spent years in pain and debility. Chronic bronchitis and rheumatism, in particular, are remarkably alleviated during a residence in Torquay. Most of the medical practitioners are of opinion that there is less tendency here to pleuritic affections in the last stage of phthisis, than is usual in colder climates; so that in the fatal cases there is generally very little suffering. It is worthy of remark that many persons (even those who otherwise are in health) after a few weeks or months' residence in Torquay, become subject to slight conjunctival ophthalmia.

The state of the town with regard to its buildings, roads, &c. demands the attention of the medical topographer, no less than many of the other points that have already been adverted to. Most of the houses are placed in juxtaposition, and arranged in streets, rows, and terraces, around the shores of the cove, and on the declivity of the hills; but many (between 30 and 40) are built as villas, and scattered over the rising grounds, each being surrounded by its shrubbery, which is often most tastefully disposed. Exclusive of the villas, there are about 115 houses in Torquay, possessing accommodations sufficient for families of respectability, nearly one-half of which may be hired, in whole or in part, furnished or unfurnished, for the season. Forty-six of these houses are situated along the shores of the cove, on the same level as the surfaces of the quays; from the edges of which most of them are distant about 50 feet. The largest and best houses are in High Terrace, Beacon Terrace, Park Street, Chapel Terrace, Low Terrace, and Vaughan Parade; but those situated most advantageously for allowing the inmates to obtain all the benefits of the local climate are in Old Quay, Abbey Place, and Vaughan Parade; which situations, perhaps, deserve preference in the order in which they are here arranged. Their fronts have exposures varying from south to south-east. Most of the houses are substantially built of the limestone of the sur-

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[*] Blewitt's "Panorama of Torquay," an excellent local guide.

rounding hills, and faced with cement. They are roofed with clay-slate, and generally are well arranged interiorly. All the newer houses are fitted up in the best style; the furniture of the lodging-houses is in general very good. The streets are Macadamized; the foot-paths formed, in part, of small stones closely set together, and in part, of flags of limestone; so that within the town, when rain is not actually falling, one may at all times walk distances of several hundred yards without wetting the feet. The roads in the neighbourhood are generally very good; and near the town, are provided with foot-paths. There are pleasant walks in several directions. One in particular, along the southern brow of Waldon Hill, through an old plantation, on the summit of a precipitous declivity overhanging the sea, is deservedly much valued by the residents on account of its good shelter and magnificent view. But a flight of more than 100 steps, by which alone it can be approached from the town, precludes the feeble invalid from availing himself of its benefits. It is with great justice that Dr Clark remarks, "that there is scarcely a wind that blows, from which the invalid will not be able to find a shelter for exercise either on foot or horseback," in the vicinity of Torquay. *

The town does not possess much commerce, but generally five or six coasting-vessels, and a few brigs employed in the Newfoundland trade, are seen in the harbour. Occasionally, the sound of the carpenter's hammer, and the smoke of the burning gorse used in the process of ship-caulking, are sources of annoyance to invalids inhabiting houses near the quays.

There are two chapels of ease to the Parish Church of Tormohun in Torquay; and meeting-houses for the Baptists and Methodists. About a mile from the town, there is a Roman Catholic Chapel. Two circulating libraries, a book society, and a good news-room exist; and there are large public rooms where meetings of the religious and charitable associations of the town, as well as assemblies and concerts, are occasionally held. A commodious set of baths is not awanting. The hotels are good; the markets well supplied. A mail is dispatched daily to London, and there are two coaches every day to and from Exeter.

During the summer, communication with Plymouth and Portsmouth is afforded twice a week by a steamer, having excellent accommodations for passengers.

Leith, 22*d July* 1833.

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* "On the Influence of Climate," p. 50.

PART II.

CRITICAL ANALYSIS.

Art. I.—*Traité Pratique des Maladies de l'Uterus et de ses Annexes, &c. A Practical Treatise on the Diseases of the Womb and its Appendages, founded on numerous Clinical Observations, accompanied with an Atlas of forty-one Folio coloured Engravings, representing the principal morbid Alterations of the Female Genital Organs.* By Madame Boivin, M. D. &c. et A. Dugès, Professor to the Faculty of Medicine at Montpellier. Vol. II. Paris, 1833. 8vo. Pp. 670.

THIS, which forms the second and concluding volume of the work of Madame Boivin and M. Duges, contains the larger, though concluding division of the first part on the diseases of the womb, and the whole of the second part on that of the uterine appendages.

Under the first head, we find the sequel of the fifth section on the Morbid Growths and Degenerations of the Womb; the sixth section on the Acute and Chronic Inflammations, and their effects; the seventh section on Derangements in the Menstrual Function; and the eighth section devoted to the Nervous affections of the Womb.

The second part is divided into four sections, in which the authors treat successively of Lesions of the Ovaries, Lesions of the Uterine Tubes, Lesions of the *Vagina*, and Lesions of the *Vulva* and contained parts.

The present volume commences with the subject of Cancer, which is fully considered in the four concluding chapters of the fifth section, under the respective heads of tuberous, ulcerous, fungous, and hematoid cancer.

From the manner in which the authors consider the subject, it appears that they regard the three latter as consequences and effects of the former state, an opinion which is well-founded as to the second species, but is not always applicable to the third and fourth.

The denomination *Tuberous Cancer*, is one which the authors of the present work propose to substitute for that of *Scirrhous Cancer*, the term adopted in the first volume, with the view of obviating ambiguity, and which they define, when applied to the womb, to be every swelling of that organ, partial or general, owing to a change of tissue not susceptible of resolution, and which necessarily spreads and proceeds to ulceration, unless the affected tissues are removed by art.

In proceeding to inquire into the nature and origin, and the proximate cause of cancer, and especially of tuberous cancer, the present authors advert to the idea,—that the cancerous disorganization depends on the presence of a parasitical animal,—only for the purpose of showing the extremely partial applicability of this fancy; and with regard to the fact of genuine hydatids having been found in carcinomatous tumours, they justly observe, that co-existence is not identity, and that accidental causality does not demonstrate necessary and constant connection. They conceive that it is certain that very often cancerous parts do not present a tissue which is new, but one which does not consist exclusively of substances foreign to the affected organ. The total or partial disappearance of the affected organ, sufficiently proves that it has served as a basis for the morbid production, whatever be its bulk or nature; and the circumstance of a tumour being circumscribed by a cyst of formation obviously accidental, is no more an argument against this opinion, than the actual appearance of vessels in the centre of the tumour itself; and, without this arrangement, they conceive cancer could not by ulceration destroy the original organ, or spread from the centre to the circumference. If, indeed, they argue, we compare the two opposite varieties of cancerous disorganization, those in which there are numerous varicose tortuous vessels, and those in which there are few or none, we shall arrive at the conclusion that, while in the latter case they must have been obliterated by the mutual compression of the morbid substance, in the former a new system of vessels had been created in the degenerated and transformed tissues.

In considering more minutely the nature of this change, they justly pronounce the idea maintained by Andral, that cancer is merely hypertrophy, as quite irreconcilable with facts, and especially contradicted by the phenomena of cancer in the uterine tissue, in which they remark, that the tissue of the uterus may be much hypertrophied, and even actually changed, without giving rise to true scirrhus; while, conversely, the scirrhous structure may be deposited in the lardaceous form, and bear no resemblance to simple hypertrophy, or in the granular, when it will resemble the pancreatoid cancer of the English physicians, and be equally remote from the characters of genuine hypertrophy.

To explain the origin of the encephaloid or cerebriform variety of cancer, pathologists have believed that a plausible method was afforded by the phenomena of the deposition and stagnation of blood in the interstitial tissue of organs, and above all, by those of the organization of clots, whether extravasated, or still contained in the heart and large vessels, as observed by Hunter and Home; and the authors observe, that this theory would admit of very ready application to the case of cancer of the womb, an organ at all times vascular, and liable to periodical vascular orgasm and distension, were it confirmed by observations more numerous and positive. It is, however, rather at variance, they observe, with the soundness of this view, that the scirrhous changes of the womb are more frequent than those denominated encephaloid, and that the neck, which is less vascular than the *fundus* of the organ, is the part most frequently attacked by cancer.

In adverting more particularly to the causes of the tuberous cancer, the authors think it may be admitted as an established principle, that the frequency and intensity of the vascular congestions of organs, and their sudden changes in nutrition and vitality, must be regarded as the chief circumstances disposing to the cancerous change of tissue; and that on this principle alone, the frequency of tuberous cancer of the womb can be explained. The general accuracy of this view is confirmed by the results of observation conducted on the most extensive scale. It appears, that, at the *Maison de Santé*, the establishment to which Madame Boivin is attached, a species of paying hospital, situate in the Rue de Faubourg St Denis, of 707 cases of cancer, admitted during the space from 1st January 1819, to 31st December 1831, a cycle of twelve years, 56 were scirrhus, or cancer of the breast; 203 cancers of the ovary; and 409, or more than one-half, scirrhus, or cancer of the womb. From these data the authors justly infer, that it is chiefly in the organs destined to reproduction that the scirrhous action betrays its general tendency, and that these organs are affected in the relative frequency of their excitement by the vascular orgasm required by their function in the economy.

Upon the same principle, the frequency of uterine cancer ought, they observe, to be expected to be proportional in the date of its developement to the period of greatest activity of the organ; and it is uniformly after puberty that the disease appears; and it is further remarkable, that it is most frequent when the stage of activity is only completed, but becomes much rarer when it sinks into the inert and torpid condition of old age.

These facts are forcibly illustrated by the predominant number of cases of uterine cancers in females at different ages. Thus, of the 409 cases of cancer of the womb already alluded to, only 12 occurred in females under 20; 83 occurred in females between 20 and 30; 102 in females between 30 and 40; 106 in females between 40 and 45; 95 in females between 45 and 50; only 7 in females between 50 and 60; and only 4 in females between 60 and 70. Thus it appears, that the greatest number of cases of uterine cancer occurs between the ages of 30 and 40, and 40 and 45; that nearly equal numbers take place in the first decade, and the latter quintade; that, nevertheless, if the quintades of the latter decade be conjoined, very nearly double the number (201) take place in the decade between 40 and 50, of that which takes place in the decade between 30 and 40; that next to the decade between 30 and 40, that between 20 and 30 is the most liable; yet that this does not approach the quintade between 45 and 50; that below the age of 20 the frequency of uterine cancer varies from one-eighth to one-ninth of that of the other periods; that after 50 it is about one-fifteenth; and after 60 it is so low as a twenty-fifth or twenty-sixth.

Next to the period of life, as connected with that of the activity of the organ, the authors place the anatomico-physiological habit of the individual; and they represent females of lymphatic and nervous constitution, at once pale and meagre,—those liable to other tubercular affections, those who have repeatedly suffered from violent grief, and who live in melancholy solitude, and especially in corporeal indolence, as most subject to cancerous diseases of the womb.

Though those who lead lives of chastity are by no means exempt from this frightful disease, it is with them much more rare than mere fibrous degeneration; and when they really appear in such subjects, they partake much of the character of these tumours, especially in the slowness of their progress. In females, on the contrary, who abuse sexual intercourse, the disease is very frequent; and in those who, in the matrimonial state, are subject to frequent excitations of the *cervix uteri*, the tendency is augmented by the disproportion of the sexual organs; and it is in this manner that the same male has not unfrequently lost several wives successively by the same disease. The disease has also been traced to a vicious and degrading practice, luckily little known among the females of this country.

It does not appear that frequent labours, if natural, dispose peculiarly to the disorder; but the inverse has been observed as to abortions, frequent derangement of the menstrual function, and repeated uterine hemorrhages, whether these circumstances indicate merely an irritable disposition of the organ, or produce of themselves a degree of congestion and engorgement eventually fatal.

The justice of this view, however, we must say that we question entirely. We do not perceive that any irritation, whether inflammatory or hemorrhagic, should of itself give rise to cancerous structure; nor do we perceive that the effects, even of a morbid poison, should be adequate to this result; since it is well known that females who have had repeated uterine hemorrhages, and those who have been more than once attacked by syphilis, are nevertheless not invariably the victims of this disease. To the production of cancer we conceive that a peculiar disposition in the tissue of the organ, perhaps in the tissues of the individual, is requisite; and all that the inflammatory or hemorrhagic irritation does, is to impel this hitherto latent disposition into activity;—and this the authors are obliged eventually to admit as the most general cause.

On the subject of family or hereditary influence, we find the experience of Madame Boivin has afforded some very curious and extraordinary examples, a few of which may not be entirely void of interest.

The Marchioness of F———, aged 25, of a nervous and very delicate constitution, residing in general in a very damp house in one of the towns of the district of Vendée, came to Paris in 1828 to visit her mother, already labouring under cancerous ulcer of the womb. This young lady feeling symptoms analogous to those of her mother, began to be alarmed about herself, and, at the suggestion of Dr Marchand, consulted Madame Boivin.

On examination by the *speculum*, the *uterus* was found depressed, and with its orifice directed backwards, resting on the *coccyx;* the inner surface of the *vagina* intensely red, and the mucous *epithelium* detached in some points; a large excoriation on the *os tincæ*, which was double its usual size, and of a deep-brown colour; the margins of the orifice ulcerated and notched with deep-red fissures, and a yellowish-white leucorrhœal discharge issuing from the neck of the organ.

After treatment, prescribed first by the author, then by Desormeaux, and, lastly, by Lisfranc, the Marchioness of F——was again examined by Madame Boivin in September 1829, when the neck of the *uterus* was found reduced to its natural size; the *vagina* smooth and sound; the leucorrhœal discharge moderate in quantity, and cream-like in consistence; and the general health improved, but the *os tincæ* still red, and marked with minute points like flea-bites.

The sister of this lady, the Countess of B——, married for ten years, has several fibrous tumours developed in the womb.

Another sister of these ladies, a nun, was labouring under a severe disease of the same organ, but of the exact nature of which Madame Boivin was ignorant.

From such cases as these, the authors are disposed to admit the existence of two sorts of predisposition to uterine disease, which occasionally run into each other, but which, in other cases, appear to be quite distinct; the one, a predisposition to certain diseases of the womb; the other, a predisposition to cancer, both equally hereditary. In the case of the former, it appears to the authors to be well established by observation, that when the cancerous diathesis shows itself in females, the womb is affected in the descending and ascending lines of the family; and this principle is further confirmed by additional facts.

A lady had a severe inflammatory disease of one of the appendages of the womb, which terminated in abscess opening in the rectum, and which left a considerable scirrhous swelling, accompanied with acute pains, which disappeared under antiphlogistic treatment. In this lady, when she became a grandmother, the womb was much enlarged, very hard, and, with the orifice whitish and cartilaginous. She had four daughters and a grand-daughter, in all of whom there was some disorder of the womb.

The eldest daughter, Madame de C. had, at the age of 58, a slight hemorrhage, which was traced to the presence of a pedunculated polypus not larger than a pea, situate at the *os externum.* The daughter of this lady had, at a subsequent period, at the right lip of the *vulva*, a polypus as large as a good sized cherry, which Madame Boivin removed by the scissors.

The second sister of Madame de C., Madame de L., younger daughter of the old lady, being delivered of her first child by the forceps, had the *perineum* lacerated to the anus; and in consequence, notwithstanding the application of a suitable apparatus, had *prolapsus uteri*, and afterwards considerable spongy tumefaction of the organ, attended with pain, while in the *os tincæ* was felt a superficial ulceration. Under antiphlogistic and sedative treatment the ulcer became cicatrized; but the *uterus* continued so large, that its *fundus* was easily felt through the abdominal parietes above the pubis.

A third sister of the same family, aged 50, had at the same time, a tumour in the anterior wall of the womb, which had induced relaxation and anteversion of the organ.

The youngest sister of the same family, aged 47, consulted Madame Boivin for pains of the left iliac fossa, attended with hemorrhage from the *vagina*. Examination ascertained that the neck of the womb was the size of a large chestnut, with the surface tuberculated, bright-red, excoriated in several points, and the body of the womb adhering to the left side. The disease made rapid progress; and Madame Boivin discovered that the patient, who, though married, lived as a widow, in consequence of palsy affecting her husband, had contracted habits which were in the highest degree injurious to her general health.

The authors add, that they have met with many young women labouring under disease of the *uterus*,—the daughters of women who had been cut off by some disease of that organ; they have met with others who have been unable to specify the nature of the disease which had proved fatal to their mother, but only that it had taken place at the critical age; and, in other cases, they have known young females, the death of whose mothers had proceeded sometimes from hemorrhage, occasionally from dropsy, and still more frequently from disease of the chest. From all this they infer, that the hereditary predisposition which leads to cancer of the womb, is not always the result of a cancerous affection, nor always of an affection of the womb, but that it is connected with other chronic diseases, as scirrhous tumours and tubercles, generated in the parents of the patients in different organs.

The most important part of the description of the semeiography and diagnosis of this disease, is that which relates to the mode of ascertaining its existence by actual examination. The diagnosis may indeed be uncertain in the early stage of the disease, but it is no longer so in the second, or what the authors denominate *declared cancer*. The *cervix*, and sometimes the body of the womb, rarely the lips of the *os tincæ*, are found by the speculum and fingers to be swollen, hard, irregular, lobed, more or less red, but smooth and free from erosion, and covered with bloody mucus, or even pure blood, if the touch is performed without sufficient gentleness; and already in emaciated subjects the ovaries may be felt enlarged.

The tumour of the organ may be single or complex,—a circumstance that renders it generally necessary to examine by the *rectum* as well as by the *vagina*, when it may be felt in the former case as a single uniform mass confined to one side, but in the latter, as a cluster of rounded inequalities, giving the idea of several nuts. These tumours are to be distinguished from simple fibrous tumour chiefly by their sensibility, which gives rise to dull, gnawing, heavy pain, or corrosive darting stings, compared to the prick of needles, pins, or a sharp knife, or the passage of a hot iron, according to the degree of the disease, or the dynamic sensibility of the patient. When the disease has attained this stage of progress, it gives rise to frequent and occasionally habitual hemorrhage, which is mistaken for a return of the menstrual function, but depends on the progressive advancement of the progress of disorganization. In many persons, however, the disease is attended with an abundant discharge of aqueous matter, inodorous or mawkish, scantily furnished with albumen, but communicating to linen a stiffened shape and some faint rose colour, and which is liable to occasional or periodical augmentations and diminutions of quantity. This discharge the authors regard as indicating the commencement of ulceration, and the production of fungous growths, which may be viewed, they add, as the third period of the disease; and it is further important, as marking the commencement of wasting, and the other signs of disorder of the general health, as hectic heat, dryness of the skin of the hands and feet, and more or less disorder of the digestive function.

It is unnecessary to follow the authors in their account of the diagnosis and prognosis of this disease; but, on the subject of treatment, their remarks may be the object of curiosity.

In attempting to oppose the progress of a threatened cancerous disease, the authors of the present treatise regard it as of primary importance to determine the influence of the remote exciting causes by which the latent disposition has been called into action. It is generally believed that cancer is quite incurable; and, in point of fact, this principle is undeniable when considered in reference to the confirmed disease. Notwithstanding the certainty of this proposition, however, several practitioners have asserted, and have believed, that they have effected cures; and the present authors are willing to admit the truth of the assertion in regard to the incipient disease, or rather in regard to the causes by which it is called into action. They believe, that certain morbid states, if not controlled and removed by the seasonable employment of appropriate means, will inevitably terminate in cancer. "We doubt not, indeed," say the present authors, "that, in the majority of cases, the cancerous degeneration is preceded by chronic inflammation, which is very susceptible of perfect cure; and to prevent cancer is often to cure an inflammatory action, by local depletion, counter-irritants, &c." The same mode of reasoning they apply to alleged cures of uterine cancer by the exhibition of antiphlogistic remedies, as mercurials, sarsaparilla, and similar agents. The syphilitic inflammation, and probably ulceration in these cases, might, if not opposed by suitable remedies, have terminated in cancerous disorganization, if the individuals were otherwise disposed to this malignant action.

These measures of precaution, they observe, are particularly requisite in the case of those persons in whom there is reason to suspect a hereditary tendency to the cancerous diathesis. It is then of the utmost moment to use all means, local and general, remedial and dietetic, to allay the morbid irritability of the parts, and to reduce to a state of quiescence the chronic inflammation or congestion, which would assuredly terminate in active cancerous ulceration. Of this nature are milk diet, the application of leeches to the back, hips, groin, and *vulva*, the employment of very dilute and mild astringent and sedative lotions, the use of vegetable narcotic embrocations, the use of those remedies which contribute to counteract the acrimony and correct the fetor of the discharge, as chloride of lime or sodium, decoction of bistort or oak, and the use of the catheter, either to obviate retention of urine, or mitigate the severity of the *ardor urinæ*, and the periodical evacuation of the bowels by glysters, to obviate constipation.

All these measures belong to the head either of preventive or palliative treatment. That which may be denominated curative, is very limited in its character; and whatever may be said of the influence of the *cure* by starvation, *(cura famis,)* as it is called, the water regimen, the employment of compression, the use of such tonics as iron, &c. both reason and experience concur in showing, that they are of no avail whatever. The only means by which the accoucheur can hope to cure uterine cancer, properly so named, may be referred, according to our authors, to three heads;—cauterization, and removal, partial or total.

Cauterization, the authors admit, is rationally applicable to scirrhus and encephaloid cancer, when confined even to the neck of the womb, only, when the tumours are small,—unless when it is determined to excise first, and to employ the cautery afterwards. Caustics, when applied to scirrhous tumours of the *uterus*, invariably produce so much inflammation, that it may be doubted, our authors think, whether they are advantageous at all; and in cases in which their repeated application becomes requisite, they justly contend that they are hazardous, and probably injurious by the attacks of acute inflammation which they induce in the womb and peritoneum, by the injury which they necessarily inflict on parts hitherto sound, and by the rapid increase of the carcinomatous ulceration which invariably follows their action. Experience of the use of these remedies indeed shows, that, by increasing irritation of parts already diseased, they augment the specific morbid action, and cause it to spread and involve contiguous healthy tissues, more rapidly than would have been the case in the ordinary course of the disease.

Some of the inconveniences resulting from the immediate application of caustics, the authors recommend to obviate by the use of the speculum, and the introduction of portions of charpie, to prevent the escharotics from affecting the *vagina*, in which eschars, by reason of the thinness of the walls of that cavity, might lead to very serious mischief. The authors advert to one case, in which the caustic potass destroyed the recto-vaginal *septum*, and in which the patient, if she had recovered from the cancerous affection, must have presented a disgusting species of deformity. These, however, we conceive, are trifling points, estimated in the general question regarding the effect of the application of an active escharotic to the *os uteri*. By care, we are satisfied that the operation of the most powerful caustics may be confined to the diseased parts exclusively; and even the caustic potass might be applied in such a mode as to prevent it from perforating the *vagina*. The grand objection to all caustics, we conceive, is simply the fact, that they do not remove at once the whole diseased parts, but merely part of them, thus plunging by their action, right in the centre of the morbid tissue, and by the violence of the consequent reaction, exciting these to greatly accelerated, and a much more intense, form of disorganization. Consider, in short, for a moment, what would be, and what actually is, the effect of the surgeon plunging his knife right in the middle of a scirrhous tumour, and removing only part of such a growth. Is it not the accelerated or more violent action of the morbid tissue? and do we not see that, when diseased portions are left under such circumstances, they proceed with a most frightful degree of rapidity and violence to the cancerous ulceration and sloughing? This is precisely what is done by escharotics applied to cancerous tumours, with the additional disadvantage, that every escharotic induces much more intense and enduring inflammatory action than clean incisions by a sharp instrument, in so far as the chemical action is followed by a more violent vital action.

Partial removal, that is, excision of the *cervix uteri*, or, more accurately, of the *os tincæ*, when the disease is not more extensive, though very often practised of late years, the authors of the present treatise regard as much less frequently admissible than it is represented in periodical publications. The first objection to which it is liable, is its inutility and the frequency of relapse, arising from the circumstance of the difficulty of removing in this manner all the diseased parts; since it is well known, that, independent of the uncertainty of removing all the cancerous tissue at the *cervix uteri*, the body of the organ or the ovaries, or both, not unfrequently contain the germ of future *carcinoma*, either primary or secondary, to that of the *cervix* of the organ. The objection derived from *diathesis*, also adduced by the present authors, is applicable to every kind of operation and local treatment. It is further, however, to be remembered, that, as an operation, it is by no means void of immediate danger. According to the estimate of Velpeau, it has proved fatal in one of every six or seven cases, while all the survivors have had more or less cancerous change still left. M. Blandin has lost one patient, either from *phlebitis*, or, as he believes himself, from absorption of purulent matter; some cases have sunk under peritonitis, and others under a nervous state, the severity of which, adds Velpeau, it is not easy to explain. It is further a proof of the truly ineffectual character of this operation, that M. Dupuytren, by whom it was introduced into France, and who has performed it from fifteen to twenty times, has now rarely recourse to it; that Lisfranc, who has operated from forty to fifty times with great success, practises it now much less frequently; and that Osiander, the original parent of the operation, and who performed it twenty-eight times, seldom of late years, before his death, put in practice.

Entire removal of the womb is an operation still more modern than the last-mentioned, and has only been thought of in consequence of the inadequacy of the latter.

The practicability of this severe operation appears to have been suggested, chiefly by examples of introversion or reversion of the womb, in which the organ had become strangulated, and had been affected with sphacelus and sloughing, and others in which when introverted, it had been removed without bad results, by incision or ligature. It is, indeed, remarkable that, independent of instances of removal of the whole of the reverted womb, apparently by ligature, which had been successfully practised by Vieussens, Anselin, Hunter, Clarke, Rheineck, Windsor, and Johnson, midwives and other uneducated persons, had cut away the reverted womb, without any bad consequences; and it is, further, not less remarkable, that the organ, when simply prolapsed has been enclosed in a ligature, and thus expelled, like a mortified slough, yet with the restoration of the health of the patients. Ruysch, indeed, records an example of fatal effects from the application of a ligature to the womb; but the singularity of this instance, with the success of the others, shows that the operation is not invariably one of danger. At all events, the perils might be supposed to be diminished by substituting the knife for the ligature, as was done by Langenbeck, who removed successfully by the bistoury a cancerous womb almost protruded from the *vagina;* and accordingly, removal by ligature or the knife, in cases of reversion or prolapse, is admitted on general principles by the authors, as a practicable remedy.

They are, however, not inclined to apply the same rule to entire extirpation of the womb when it retains its ordinary situation. The Memoir of Sauter, and the second part of that of Tarras, contain the detail of seventeen cases; and the present authors add other two in which the womb was extirpated; and the results are the following. Sixteen have died of the consequences of the excision; one, the patient of Langenbeck, on the fourteenth day only; another, operated on by Bannes, on the fourth; the majority on the following day, or at most, on the third day; and some a few hours, or a few seconds, after operation. Of those who might be regarded as temporarily cured, not one survived more than a year. The patient of Dr Sauter died at the close of some months, though of a disease which appears to have been foreign to the operation, and the disease for which it was required. Return of cancer cut off one of the patients on whom Dr Blundell operated; and the case of M. Recamier, which was considered one of complete success, died at the close of a year,—of diarrhœa it is said; but this statement requires the confirmation of inspection.

From these facts, the authors infer, that excision of the womb, otherwise an operation of the most painful character, cuts off more patients by the exhaustion ensuing on sufferings protracted for half an hour or more, than it destroys by hemorrhage or inflammation of the peritoneum; and that, while it exposes the most dexterous operators to the laceration or injury of the bladder, it has been successful in *one* case only in *six;* and even these hopes have been frustrated at the end of a shorter period, perhaps, than that which the disease, unresisted in its course by any means, would have allowed to the patient. They therefore conclude, that, even if the operation of extirpating the womb when undisplaced were, by means of new improvements in the mode of performance, to be rendered less speedily mortal, it would still require to be confined to those cases only in which the cancerous disease is so painful as to render life intolerable, and in which it is unconnected with diathesis or extension of the disease to the neighbouring parts.

It is impossible to follow the authors in their details on the two methods of operation—the *supra-pubal* and the *infra-pubal.* The first method, which was originally proposed by Gutberlat, and has been performed once by Langenbeck, and once by Delpech, consists in cutting into the abdomen through the lower fourth of the *linea alba*, pushing up the *uterus* by the index finger of the right hand, introduced into the *vagina* so as to meet the index finger of the left hand introduced into the wound, and detaching the organ carefully by the guidance of a horn cylinder; but its execution appears to be attended with difficulties which, even in the best hands, are almost insurmountable. The *infra-pubal* is the method usually followed by Sauter, Blundell, and others, and is certainly, though by no means free from danger, the more practicable operation of the two.

In their account of Ulcerative Cancer, the present authors do not observe the most methodical division in the world; and we doubt even whether they do not confound different varieties of cancerous or malignant disease under the same head. When they remind the reader, that the tuberous cancer at length passes into ulceration, and may give rise to the production of fungous growths, we admit the truth of the remark, and the justice of its application. But when they add, that the fungous granulations are occasionally penetrated with blood, as in hematoid cancer, they make a statement which, if not erroneous, is at least liable to be misunderstood, in making it be supposed that they regard the fungus hematodes as a mere variety of ordinary cancer. Without pretending to deny that the fungous granulations may become penetrated with blood, we must observe, that the hemorrhages, which so frequently attack cancerous ulcers, are most generally produced by the cancerous action involving the blood-vessels of the neighbouring parts, and by the combined process of sloughing and ulceration, laying open one or more considerable vessels. With this single remark, however, we proceed to consider what they state on the subject of *ulcerative cancer.*

The authors begin by remarking that it is unnecessary to believe that every ulcerous cancer is the result of a deep or serious degeneration of the substance of the womb. While, on the one hand, numerous examples take place of scirrhous and encephaloid productions, which cut off the patient before complete softening, and before any erosion or breach of the surface, there are also ulcers which may be denominated primary, which commence at once with the characters of cancerous degeneration, superficial indeed, but destroying almost immediately the tissues which it attacks. Bayle and Cayol, even in their article in the *Dictionnaire des Sciences Medicales,* represent cancer of the womb as most frequently a primary cancerous ulcer, analogous to *noli me tangere* of the skin, and which rapidly forms at the uterine surface irregular reddish, violet, or whitish granulations or fungosities, or a species of putrid pulp of dark ashy colour, which they regard as a species of gangrene. The latter idea Madame Boivin and M. Dugés consider to be very natural, since ulceration in general, according to them, is to be viewed as a molecular or atomical gangrene,—that is, an action in which the component atoms of the tissue being disorganized and mortified, are too small in quantity, and too quickly expelled by suppuration, or removed by absorption, to be capable of putrefying at the surface by which they are sustained.

Without pretending to estimate the justice of this view, we think it necessary to remark, that every process of cancerous destruction involves at least three different actions, which may in general be pretty accurately distinguished.

The first, and perhaps the most necessary of these, is a process of ulceration, or suppuration with ulceration, which generally commences at the union of the sound with the diseased parts, and which appears to be occasioned by the vascular irritation given by the latter to the former. This sometimes commences at the surface of cancerous tumours, but is most frequently observed at their margin; and the first form in which it appears, is that of a common, very hot, painful, phlegmonous swelling, which discharges healthy purulent matter mixed with blood, and sometimes the ichorous fluid of cancer.

The second action taking place in cancerous ulceration, is the softening of the scirrhous tissue, which consists in that structure being, as it were, disorganized and melted down into separate solid particles, and a thin watery fluid, commonly named *ichor*, to which acrimonious and corrosive qualities are very generally, and perhaps not without reason, ascribed. It not unfrequently happens, that the latter action is associated with the former so closely, that superficial observation is inadequate to distinguish them. But they depend, nevertheless, on different causes, and give rise to different effects.

The *third* separate action which is observed in cancer, is that of the death of various parts of the cancerous tissue, and sometimes of the adjoining tissues. The mode in which this takes place requires explanation. The tissue peculiar to *scirrhus* is so firm and resisting, that it does not easily yield to any distending force; and this is particularly true of the fibro-cartilaginous *septa*, whether they occur in the centre of the tumour or round its circumference. The tissues peculiar to cancer, both the fibro-cartilaginous and the white-grey amorphous matter, possess but low powers of vitality,—are not copiously supplied with blood, and if compressed in a very moderate degree, speedily undergo mortification.

As scirrhous or carcinomatous tumours increase in size, or in other words, as the scirrho-carcinomatous matter continues to be deposited, it very soon occupies a space too limited for it, and in consequence of the unyielding nature of the fibro-cartilaginous parts, pressure at different points of the tumour becomes so excessive, that the weak vitality of the cancerous tissue is unable to sustain it longer, and mortification ensues in portions more or less extensive. The parts thus deprived of life continue to cause ulceration, in order to effect their detachment; and, as they are, while still adherent to the tumour, the chief cause of the fetor of cancerous sores, they not unfrequently contribute in their detachment to the hemorrhages which take place from time to time.

These circumstances are chiefly applicable to cancerous ulceration consequent on scirrhous tumours.

In the superficial or primary ulcerative cancer a different course is observed. This disease, in short, is that in which ulceration, not unfrequently of a common character, and at least not cancerous, appears at the mucous surface of the womb, generally its orifice, and gradually assumes the cancerous character and action. As, however, this is not preceded by the scirrhous degeneration, there is less of the mortifying and sloughing process, and the disease consists chiefly of the second process, with some of the first. The present authors further think there is reason to believe, that occasionally tuberous cancer commences by internal ulceration.

Ulcerative cancer may succeed to syphilitic ulceration, or, indeed, to any species of action of an unhealthy character, and especially, according to the present authors, to strumous disease of the womb, or chronic inflammation in strumous habits, as is occasionally exemplified by uterine catarrh or leucorrhœa. There is, nevertheless, a difficulty in this, that in such cases the leucorrhœal discharge, which is supposed to have induced the ulcerous cancer, may itself have been the result of previous tubercles of the womb.

They distinguish the Ulcerative Cancer into two varieties, according as it attacks the body or the neck of the organ, the latter being the most frequent.

In the former, the leucorrhœal discharge is attended by a sense of weight, deep in the hypogastric region, itching, and venereal desires; and sometimes a sense of internal erosion and darting pains are the first indications of the disease; and when the organ is examined, it is found painful and swelled. From the body, the morbid action may proceed to the neck, when it generally gives rise to attacks of hemorrhage, pains of the loins and thighs, and, in short, all the symptoms of tuberous cancer. The hemorrhagic discharges, the authors think, in this form of cancer, depend chiefly on erosion of the vessels, since they take place principally after the action has subsisted for some time, and has proceeded to a certain depth in the uterine tissue.

The discharge in the established stage of this form of cancer is rarely either bloody or puriform, but consists of a sanious fetid acrid matter, sometimes watery and slightly bloody, or at most sero-albuminous, and wetting profusely the cloths applied. Its abundance, combined with affection of the neck of the womb, often gives rise to a symptom very painful to the patient, and somewhat puzzling to the practitioner. The swelling of the neck of the womb by *fungi* or tuberous growths, or even common inflammation, contracts and occasionally obliterates the *os* *uteri;* and the fluid, incapable of escaping, accumulates and distends the cavity of the *uterus*, with extreme pain and most distressing suffering to the patient, and much abdominal swelling, as several cases in the present volume abundantly prove. It is only when the inflammation is subdued, and the swelling has subsided, or the fungous growths have sloughed and been expelled, that a most profuse discharge takes place from the interior of the womb, with relief of the painful distension, and subsidence of the abdominal swelling.

The consequences and terminations of this form of uterine cancer are various. As the disease presents much of the character of phagedenic ulceration, it destroys the *cervix* and *os uteri*, producing much thickening of the surrounding organs, and occasionally destroys the neck of the bladder before, and produces urinary *fistulæ*, the recto-vaginal septum behind, and forms a cloaciform cavity, or even perforates the peritoneum, and terminates the existence of the patient by secondary *peritonitis*. The latter accident M. Dance has seen four times. It is, indeed, not unfrequent; and, when complete perforation is not produced, it has been prevented only by copious depositions of lymph in the utero-rectal and utero-vesical *fossæ*, and subsequent agglutination.

The treatment of this disease is entirely palliative; and the details of twenty cases present nothing but a hideous picture of human suffering, and the inefficacy of all medical treatment.

Fungous Cancer the authors distinguish into two varieties.

The first, the *racemiform* or clustered *fungi*, like a cluster of white currants, not generally pediculated, but consisting of a groupe of smooth, uniform, soft bladder-like globules, accumulated round the orifice of the womb, and which may ulcerate at their surface,—or, being strangled at the neck, may be attacked by mortification, and expelled, leaving a gnawing ulcer, the ravages of which are speedily fatal.

The second form of *Fungous Cancer* consists of tumours with a narrow base, with one or more footstalks, which spring from the *os tincæ*, not ulcerated, but merely swelled and cancerous, and are often connected with ulceration of the interior of the womb and neck. The proof of this is found in the fact, that often after removal or spontaneous destruction of these *fungi*, expanded into the *vagina*, the cervix is laid open and destroyed from within outwards. It is well known that Sir C. M. Clarke distinguishes the *cauliflower* excrescence from cancer and cancerous *fungi*, or those cauliflower-like granulations which spring from cancerous tumours of the womb. The latter, however, the present authors are disposed to regard as differing merely by some shades of external form and dimensions from the true cauliflower excrescence described by Clarke; and they consider at some length the question of their similarity of origin. Without pretending to maintain that Sir C. M. Clarke is correct in representing every case of cauliflower excrescence to be independent of cancer, properly so called, we do not perceive that the arguments adduced by the authors before us are adequate to prove that the cauliflower excrescence is identical in origin with the ordinary fungous granulations of cancer. We have reason to believe, indeed, that while it is often unconnected with genuine cancerous tissue, it is a disease the true origin of which is little known.

The account of *Fungus Hæmatodes* is less accurate and satisfactory than most other parts of the volume; and as we do not perceive that our readers would derive any advantage from perusing the descriptions of Dr Hooper, after they have passed through the hands of the authors of the present volume, we proceed to the next section.

This, which is devoted to the acute and chronic inflammatory diseases of the womb, after some general considerations, exhibits a view of the several varieties of uterine or utero-peritoneal inflammation, under the following heads;—Simple acute *Metritis;* puerperal *Metritis*, with inflammation of the uterine veins; chronic *Metritis*, with induration of the womb; Simple Ulceration of the *os tincæ;* Granular Inflammation of the *os tincæ;* and Mucous Flux of the Womb, Leucorrhœa or Whites.

The chapter on the first of these subjects, contains nothing particularly novel or original. In the second we find a description of uterine, utero-peritoneal, and utero-venous inflammation, which, though full and complete, has been now several times, on different occasions, anticipated in this Journal; and, while we willingly admit that the authors have given a tolerably good account of the results of the observations and researches of their countrymen, Dance, Luroth, Tonellé, and Duplay, we must add, that they have shown themselves to be completely mistaken as to the pathology of some of the varieties of uterine puerperal inflammation, by their total neglect of the distinctions established by Dr Robert Lee of London. Had they even taken the trouble to consult the account of that gentleman's essay given in the 38th volume of this Journal, and which, without any undeserved compliment to ourselves, we have the modesty to regard as not only the best, but the only good account of the subject, they might have been better prepared to add to the present stock of information on the subject of *metritis* and puerperal fever. The paper of Dr Lee, with the article in question, presents the only means of reconciling the discordant statements and opinions which have so long divided medical men on the characters and nature of that disease; and it is our firm persuasion, after studying the subject practically with the greatest attention, that no one need attempt either to investigate the nature or conduct the treatment of puerperal fever, without making himself perfectly master of both. The chapter in the present work might have answered some four or five years ago; but at present, it is deficient in all the most important requisites of a satisfactory account of puerperal fever.

It gives us pleasure to find that these remarks are not applicable to the fourth chapter, devoted to the subject of chronic uterine inflammation, and especially indurated enlargement of the womb.

This disease, though incident to females at all ages and of all habits, is most frequently found to affect those who have had frequent labours, either regular or morbid, and those who, though virgins, are liable to painful and irregular menstruation.

The lymphatic temperament, also, especially with predominance of struma in childhood, may predispose to this affection; syphilis may act as an exciting cause; and the hereditary tendency to cancer has generally been observed by the authors to induce chronic uterine inflammation, previous to the actual appearance of the cancerous disorganization; and when this degeneration has taken place, its reaction on the sound structure induces chronic uterine inflammation.

The invariable effect of this action is to mingle with the fundamental or elementary tissue of the womb animal substance in some degree foreign, of albuminous character probably, and which causes swelling, thickening, and induration of the organ, sufficient to offer some resistance to the cutting instrument. This change is designated by the authors by the general name of hypertrophy; and it is represented as susceptible of resolution under the use of remedies which cause absorption of the newly deposited foreign matter.

Hypertrophy has been observed by Hooper and others often to accompany *prolapsus* of the womb; and the present authors are inclined to believe that the latter accident has a tendency to produce the state of inflammation, and perhaps that of hypertrophy; but they think that it is immaterial to distinguish in such circumstances inflammation from hypertrophy; and that the chief point is to distinguish the latter from cancer, in which no reasonable hope of resolution can be entertained.

Anteversion is also often the effect of chronic *metritis*, in consequence of the increased quantity of matter giving the organ a greater degree of weight, and thereby causing it to stretch the ligaments and protrude from its just position; and hence the circumstance, either of prolapse or anteversion, forms a reasonable indication for believing in a degree of hypertrophy. When the organ is partially or locally affected, it always inclines to that side; and hence, on examination, it is of importance to observe whether the womb is anteverted, prolapsed, or inclined to the right side or to the left. Next to these, as indications, the practitioner should attempt, by grasping the organ gently between the fingers, to ascertain to what extent it is thickened; and if, with the presence of other symptoms, he cannot recognize any increase in size before or on the sides, it is requisite to examine by the *rectum*, in order to determine if the posterior wall of the organ is in any degree thicker or firmer than natural.

The authors give rather a good delineation of the diagnostic signs by which this disease may be distinguished from *scirrhus*, *polypus*, fibrous tumour, and incipient pregnancy.

The accurate diagnosis of this state of the *uterus* is so much more important with a view to treatment, that, while nothing *can* be done in the first case, and nothing *should* be done in the last, much may be accomplished by the judicious and prompt employment of suitable remedies. The great object is to promote resolution, and to prevent the chronic inflammation from going on until the induration terminates in scirrhus, which there is little doubt that it may.

The first indication the authors lay down, is to improve an unfavourable constitution, by the use of general remedial measures, as change of air, residence in the country, nutritious but unirritating regimen, and flannel clothing.

It is, however, somewhat at variance with part of the above treatment, that the authors recommend the hunger method of cure, in a very rigorous and measured diet; and in proof of its efficacy, appeal to the advantages derived from the plan which reduces the allowance of patients to one-quarter, one-third, or one-half of their ordinary food; yet immediately after, they recommend vegetable and innutritious diet. This inconsistency they should not have admitted; and it would have been proper to specify when it was requisite to confine the patient to a scanty allowance of innutritious food, and when it might be safe or requisite, to give her a more liberal and substantial diet. We have ourselves no doubt of the efficacy of the low and reducing regimen in subduing diseases of the womb, especially if combined with the influence of the horizontal position, and suitable local treatment; and we believe, that it ought always to precede all other means, and above all, the allowance of substantial diet.

Next to the measures which operate on the general health, it is of the utmost importance to regulate the circulation of the womb; and for this purpose, if menstruation is scanty or irregular, the present authors recommend the local application of a few leeches at the approach of the menstrual period, with the use of the hip-bath.

Purgatives, which are useful in all diseases, are particularly indicated in this, at least in the form of enemata, in order to abate irritation and prevent the rectum from aggravating the pains of the uterus, by the pressure of excrementitial matter, or the interruption of the circulation. On a similar ground, the deobstruent or resolvent agents, as the neutral salts which act on the general circulation, or that of the kidneys, are recommended; and Madame Boivin bears testimony to the efficacy of mercurial frictions, preparations of iodine, mineral waters, and sarsaparilla, which has been much commended by Sir C. M. Clarke, and all of which operate much in the same manner.

Counter-irritants are also highly approved of in the shape of cauteries, moxa, and setons applied to the loins, the region of the sacrum, or even to the thighs.

The application of these therapeutical rules, is illustrated by the details of several cases of considerable interest.

In the account of Simple Ulceration of the *os tincæ*, Madame Boivin follows the description given by M. Dupuytren, who represents this species of lesion to consist in a superficial sore or breach of surface, on one or other lip of the *os tincæ*, reddish-coloured, and so definite and sharp in that margin as to convey the idea that it had been cut out by a punch,—confined to the mucous membrane, and similar to the ulcers of the nasal mucous membrane, which give rise to ozaena, yet, unless subjected to proper treatment, terminating eventually in the death of the patient.

This account appears to us singularly vague, since the author nowhere gives us any information as to the mode in which the ulcer produces the fatal termination. From perusing the cases appended to the general description, the disease appears occasionally to be the result of local irritation, the application of blennorrhagic or syphilitic matter, and sometimes of violence during the process of delivery. It should not be forgotten, that several cases of leucorrhœa depend on the presence of this form of uterine ulcer, which in this and some other characters, appears to resemble the *corroding ulcer of the mouth of* the womb, described by Baillie and Clarke.

Dupuytren, Delpech, Marjolin, and Jobert, cure this ulcer by cauterization, Delmas by solution of nitrate of mercury, and M. Puquet by the local application of mercurial ointment, and occasionally by the use of ointment of sugar of lead.

The name of *Granular Inflammation* of the *os tincæ*, the present authors apply to a disease in which that part becomes swollen, soft, deep-red, ecchymosed, and very tender, and covered by minute hard granular bodies, in general not larger than grains of sand or poppy seeds, or if larger, rather softer, and thus evading and deceiving the touch. This state of the *os tincæ* gives rise invariably to copious leucorrhœal discharge, venereal pruriency proceeding to *nymphomania*, and considerable pain even in the rectum.

This state of the *os uteri* Madame Boivin further distinguishes into two forms, the subacute and the chronic; the former distinguished either by a few pisiform, sub-pediculated, firm, whitish elevations, or numerous whitish, soft, vesicular, millet-seed-like sessile bodies, the interstices of which discharge blood on any irritation; the latter distinguished by the presence of hard, minute, whitish granulations, as well as reddish soft eminences, of a varicose appearance.

The nature and etiology of this granular disease of the *os uteri* are little known. Occasionally preceded by abortions, deranged menstruation, and other common causes of uterine disease, it has sometimes appeared to be the result of an eruptive action,—a species of tetter of the mucous surface, perhaps remotely referable to syphilis; and in other cases it has been connected with induration of the *cervix uteri*, or a fibrous tumour of the womb. The authors also suggest the idea, that it may consist in a hypertrophy, or an organic exaggeration of the follicles of the mucous membrane of the *os tincæ*,—an opinion which it would surely not be difficult to confirm or refute, so as to exclude all doubt on the subject. As we have not met with instances of the disorder, we abstain from conjecture.

Whatever be its nature, however, it appears that treatment directed to operate on the remote causes, and on the actual symptoms, is advantageous in the majority of cases. Thus, emollients and local depletions in the subacute state, when there are redness, pain, tenderness, and rawness of the *os uteri*; tonics and stimulants, especially the mineral waters, in the chronic state; and mercurials when it appears to be connected with a syphilitic taint, have in general proved efficient in the hands of Madame Boivin. The authors do not specify the means found useful, in the idea that the disease consists in hypertrophy of the mucous follicles.

This disease appears of itself not to be necessarily fatal. One of the best cases given in illustration of the anatomical characters of the disease, and there are only two, occurred in the person of a young seamstress of 25, employed as a shopwoman in an establishment of made linens, in whom the existence of the disease was demonstrated in a singular and melancholy manner. Proceeding through the Rue de Montmartre with a basket of clothes, an insane woman, living in the fifth floor above, precipitated herself out of the window, and lighted on the young seamstress. The weight of the suicide first bent the body of the young woman forward, who then, rising all at once, fell backwards, with instantaneous palsy of the lower extremities.

When she was brought to the Maison de Santé, though no external injuries were recognized, it was found that the bladder and rectum had lost their contractile power; and all the symptoms of severe injury of the spine and the spinal chord quickly supervened. Sloughing of the sacrum, frequent vomiting, and muttering delirium, with gangrene of the extremities, preceded the fatal event.

On inspection, besides luxation and inflammation of the articular surfaces of the two last lumbar vertebræ, spinal *arachnitis*, softening of the spinal chord, with purulent matter in the cavity of the sacrum, and proceeding outwards by all the sacral holes, with cerebral *meningitis*;—the womb, which was small, presented in the substance of its anterior wall, left side, a fibrous tumour, as large as a common-sized nutmeg.

The surface of the *os tincæ* behind the membrane by which it is covered, presented many soft whitish granulations, like pin-heads in size, situate particularly in the anterior lip, which was pliant, but much larger and thicker than the posterior. It is proper to add, that this girl, who had all the external marks of virginity, had always been regular, though more abundantly than her constitution demanded.

It may be proper to observe, that bodies similar to those described in this chapter, are often observed in the *penis* of the male at the *corona glandis*, where they are assuredly enlarged and degenerated mucous follicles.

The section is terminated by a long chapter on Whites, Leucorrhœa, or Uterine Catarrh, in which a good account of the pathology and treatment of that disease is given.

In the eighth section, on Derangement of Menstruation, we find, after some general observations on the nature and objects of that function, that the authors adopt the usual arrangement of nosologists, and consider its various anomalies under the three several heads of Essential *Metrorrhagia*, or profuse menstruation; *Dysmenorrhœa*, or painful menstruation; and *Amenorrhœa*, or suppressed menstruation.

In these chapters, though the usual details of symptoms and treatment are well explained, we cannot recognize anything very new or interesting, unless we refer to this head,—the theory to which the authors have recourse in order to explain these anomalies of the function of menstruation. Though this theory is nowhere very distinctly unfolded, it may be stated in the following manner, as collected from the general tenor of observation and reasoning observed by the authors. There is reason to believe, that the ovaries exercise on the womb and its circulation such a sympathetic influence, that when the former, in the course of years, acquires the puberal developement, they communicate to the womb a sort of impulse or stimulating energy, by which its vessels become distended with an additional supply of blood, which must either be employed in rearing a new being in the manner of reproduction, or must be discharged periodically by a species of secreting action from the vessels of the mucous surface.

In this hypothesis, there are two assumptions,—one, that the ovaries possess an influence over the womb, or the power of exciting the vascular system of the latter organ; a second, that the womb is always ready to obey this stimulus, and to receive the influence of the ovaries. The first of these may be regarded as demonstrated by the concurrent evidence of numerous physiological and pathological facts; the second, if not established on equally irrefragable data, must be at least allowed to be a convenient mode of expressing the dependence of the womb and the uterine circulation on the state of the ovaries.

This doctrine, therefore, supposing it established, the authors apply in the following manner, to explain the anomalies of the menstrual function. When the influence of the ovaries is too energetic, and the susceptibility of the uterine vessels is too great, they allow themselves to be too easily, and too much congested; and the result is *menorrhagia.* At least, excluding all organic affections of the womb or neighbouring parts, and viewing *menorrhagia* as an exaggerated form of the dynamic property of sanguine secretion, such is the result. In some instances, however, in which the ovarian influence is too energetic, and the uterine vessels are so feeble as to be unable to obey the impulse, and do not readily assume the secreting action, the result is a low congestive or chronic inflammation of the *uterus*, with acute pain, difficult or entirely suppressed menstruation, and a white mucous discharge from the uterine surface. In other instances, again, the ovarian influence is so feeble, that it is unable to excite the uterine vessels; and a degree of torpor of the organ and its vascular apparatus, approaching to *anæmia*, is the result. This state is more or less generally the cause of *amenorrhœa;* and whatever be the remote cause that operates on the ovaries in preventing them from communicating the requisite impulse to the uterine circulation, the atony of these organs is followed by corresponding *inertia* of the womb. Even in the instances in which menstruation has taken place once or twice, or oftener, and been suspended for some time, the present authors seem disposed to look to the suspension as originating previously in some morbid action taking place in the ovaries. In other instances, however, they admit a general cause operating at once on the ovaries and the womb. Thus, pulmonary consumption, and similar diseases in which the menstrual function after being once established is suppressed, operates chiefly by driving the blood from the pelvic organs generally to those of the chest.

We have taken some pains to give a general and connected view of the theory which pervades the whole of this section, and we perceive that we have unconsciously made it much more explicit and distinct than it appears in the present volume. The only apology which we have to offer for this, and perhaps the only satisfactory one, is, that in this manner we have been enabled to give shortly the only views upon this subject which deserve much attention in the work.

In the eighth section, devoted to the subject of uterine nervous diseases, the subjects of *Hysteria*, *Hysteralgia*, and *Nymphomania* are treated, the first at great length, the others more summarily.

Hysteria is distinguished by the authors, according to the manner in which its accession takes place, into five different varieties; 1. the suffocative; 2. the apoplectiform; 3. the syncopal, or fainting hysterics; 4. the cardiac or gastric; and 5. the pertussiform, or coughing hysterics; and after a minute description of the phenomena of each, among which we find the case of Madame La Chapelle herself detailed under the head of *cardiac hysteria*, they proceed to give a history of the individual symptoms attending this proteiform disorder.

The denomination of *Hysteralgia*, or Womb-ach, the present authors apply to throes, generally very severe, referred to the *uterus*, not constant, but occasional and periodical, and which they represent to be of two sorts.

The first species, to which they apply the name of *Acute Hysteralgia*, comprehends pains resulting in some females from sexual intercourse, particularly those which ensue in some females after the first time that they have had connection. The exact cause of these pains is not ascertained. They may proceed, the authors observe, either from physical violence, producing spasm of the womb and *vagina*, or from some physiological excitation; and that the latter is the more probable source of the two, they think may be inferred from the fact, that these aching pains are in general not developed, and do not attain their highest degree of anguish till some hours *post coitum*. Occasionally hot and burning, these pains resemble often a sense of pinching, or of strong pressure in the hypogastric and pelvic cavity, spreading occasionally to the loins and groins. Though intermitting, their intervals are attended with a gnawing weight and tenderness, which is liable to make them be mistaken for slight uterine inflammation; and the present authors are of opinion that these spasmodic actions actually induce slight *metritis.*

In one case of this kind referred to by M. Dugés, in which the throes had been sufficiently painful, and continued to produce emaciation and feebleness, and in which the menses were retarded, with copious *leucorrhœa,* they attained their greatest acuteness some hours *post coitum;* and a quantity of mucous fluid was then emitted by the organs of the patient. In this case, all the symptoms disappeared under the use of baths, emollient slightly narcotised glysters, poultices to the hypogastric region, and restraint enjoined on the husband.

The second species, denominated *Chronic Hysteralgia,* is a genuine neuralgic disease, void of all characters, either of irritation or inflammation, and appears, like all neuralgic affections, to cause most intolerable suffering for a series of years, and to be little under the influence of remedies. Madame Boivin, indeed, specifies sulphate of quinine as the appropriate medicine; and recommends, in the event of its failing to exercise its antiperiodic influence, the employment of antispasmodic and narcotic agents, as morphine, hyoscyamus, &c. But M. Dugés states, that in certain cases he has found the most powerful antispasmodics quite unavailing; and mentions the case of an unhappy married woman, living in the country, who had consulted him for a *utero-vaginal neuralgia,* which had recurred at intervals in a form so excruciating, as to deprive her for the time of all reason, make her lose the sense of modesty proper to the sex, and violate all the rules of decency.

Nymphomania, or *furor uterinus,* which is treated in the fourth and concluding chapter of this section, the authors justly represent to be not in all cases one invariable distemper. The inordinate and shameless desire of sexual pleasures, indeed, which is conceived to constitute the leading feature of this disorder, constitutes only one symptom, which may be conjoined with others, and indicate by this combination the original source from which it had sprung. To remove this confusion, the following distinctions are requisite.

1. It appears, in the *first* place, that the name of *nymphomania* has been frequently applied to a mere mental passion, which the authors admit may, in some females, be sufficiently violent to disregard the ordinary bounds of decency, but which must, nevertheless, be entirely a subject for moral restraint, not medical treatment.

2. It must be admitted, in the *second* place, that a violent passion, partly sexual, when thwarted and rendered hopeless, may, and often has, induced mental derangement; that the

physical desires, subsisting in full force, have given this derangement a nymphomaniacal character; and that the gratification of these desires, or of the passion which has induced the disease, may effect a cure, the authors also admit without difficulty. But they do not allow that it thence results that insanity induced in this manner constitutes genuine *nymphomania;* and they argue that, as the cause in question does not invariably produce the same effects, and as these effects may arise otherwise, *nymphomania* must be a secondary and accessory affection; and in illustration of this, they adduce a case of the disease very similar to all the other cases.

3. It then becomes a question whether the womb and its appendages are affected secondarily, or whether a previous affection of these organs were adequate, in subjects otherwise disposed, to induce so great a subversion of the judgment, and so violent a perversion of the moral feelings.

Lastly, the present authors repeat the observation already made by many, that instances of local irritation and inflammation of the external genital organs, especially of the clitoris,—for example, a tetter or eruptive disease of the vaginal and labial mucous membrane,—may induce such a degree of pruriency, with violent venereal desires, as to constitute nymphomania from local disorder alone. They justly observe, however, that these morbid desires may be carried to an extremity sufficiently great to induce vicious habits, yet without affecting either the intellect or the moral sense of the individual. From all these considerations, they infer that genuine *furor uterinus* is to be viewed only as a complication of a particular state of the organs of intelligence.

The second part of the work, which is comprised within about 150 pages of the volume, is devoted to the subject of Lesions of the Appendages of the Womb; that is to say, I. Lesions of the Ovaries, including Physical Lesions, Distension, and especially *Hydroophoria,* or what is called Ovarian Dropsy, Degenerations or Organic Changes of the Ovaries, and *Oophoritis,* or Ovarian Inflammation; II. Lesions of the Uterine or Fallopian Tubes, including dropsy and inflammation of them; III. Lesions of the *Vagina,* consisting of changes in the shape and situation of the canal, breaches, wounds, and their effects, and dynamic and organic diseases; IV. Lesions of the *Vulva,* as rape, and laceration of the *perineum,* deformities, tumours, and excrescences of the *clitoris,* hymen, and *nymphæ;* and lastly, The Inflammatory, Catarrhal, and Erysipelatous Affections of these parts.

On the former of these subjects, we have had occasion to speak so fully when considering the writings of Dr Seymour, and also those of Dr Lee, that it would infallibly give rise to much repetition, if we attempted to follow the present authors in their account of the same subject.

With regard to the latter, we feel that the length to which this account of the work before us has extended, precludes the possibility of dwelling longer or more minutely on the subject; and we must refer those of our readers to the volume itself, in which they will find much information, and many curious practical facts.

The details given in this article will enable our readers to form a pretty just conception of the nature and merits of the present work. Whatever faults or omissions we have seen, we have noticed freely and without ceremony. Notwithstanding these, and the occasional ordinary character of the information, it possesses many merits. It communicates much pathological and practical instruction, and contains, if not the most minute details, or all its subjects, at least the most complete and methodical body of information on uterine diseases now extant.

The chief objection to the work as a didactic treatise, is the great predominance of cases, and what invariably results from their preponderance, a degree of indifference to the concentration and generalization of facts. The authors seem to think, that, if they give some curious illustrations of pathological or therapeutical principles among their cases, it is quite unnecessary to embody them with the general descriptive accounts. They ought to remember, nevertheless, that for one that studies the cases of a work consecutively, at least 100 will peruse the general description, and neglect the cases entirely. This evil we should not have noticed so particularly, did we not perceive that it has now attained in the writings of our continental friends a great and most pernicious excess. Cases on cases inundate and so bewilder the unhappy readers of medical writings, that if the practice be continued much longer, it will assuredly work its own cure, by making every one open such works merely to shut them again. The declamation about the value of practical facts has now attained its maximum, and produced such a confused heterogeneous mass of materials, that unless a new system of observation and selection be adopted, instead of being beneficial, they will produce incalculable mischief.

Of the illustrative plates with which the work is accompanied, we have expressed our opinion when we noticed the first volume. We are happy to say that they maintain the character which we then gave them. The work is indeed now completed, and it may be pronounced to contain specimens of all the organic diseases of the womb and its appendages, with which the practitioner ought to be acquainted. Without pretending to say that they exhaust the subject, we hesitate not to affirm, that they must form a ground-work for all future treatises of the same kind.

ART. II.—*Petition addressed to the Chamber of Deputies, by M. Chervin, while Member of the Royal Academy of Medicine, in order to direct that the Results of the Official Inquiry which the Government has made in the United States, on the conduct of this physician, his moral character, and the question of the contagion or non-contagion of Yellow Fever, &c. be published at the expence of the Administration.* Paris, 1833. Pp. 138. 8vo.

M. CHERVIN, the enlightened and indefatigable champion of non-contagion, once more appears to defend his doctrines. It will be recollected, that, in the thirty-fifth volume of this Journal, notice was taken of his former publications. Since then, he seems to have continued in the pursuit of this one object,—the overthrow of the doctrine of contagion, and the destruction of the pernicious quarantine restrictions which form part of the police of every state.

The letter before us, is in the form of a petition to the chamber of deputies, setting forth, 1*st*, the author's complaint of injustice done him by the Minister of the Interior and the Director-general of quarantine; and 2*d*, the necessity of a prompt reform of the sanitary system of France.

M. Chervin has had his patience put to a severe trial by the opponents of his doctrine; and if we may credit his statement, which there is every reason to do, the arm of power has been stretched forth to deprive him of justice. It would answer no good purpose to enter into a statement of all the disappointments and neglects which he has endured. To these, and much more, every man must be prepared to submit who attempts to impugn established opinions, however opposed they may be to reason and experience.

It was natural to expect, however, that M. Chervin, conscious of having done more for the investigation of the question of contagion than all the public boards and committees combined, should feel hurt at finding himself treated with suspicion and neglect; while the subordinate agents of government were intriguing to deprive him of the merit and reward of his labours. It is but justice, however, to M. Chervin, to state, that, however hurt his feelings may have been, he has not given way to the petulance of ill humour, but has contented himself with a statement of facts and inferences, which must make more impression than the most clamorous demand for justice. In discussing this portion of the work, we have no hesitation in saying, that the character, both moral and professional, of the author is above all suspicion, and that the hints, insinuations, or open calumnies of envious or interested individuals, can have no effect when opposed by the ample testimony borne to his merits by unprejudiced men of science, by one of the legislative assemblies of his country, and even by the minister of whose injustice he complains, in refusing him access to certain papers connected with his researches.

We now proceed to that part of the work which is of more general interest, in which he shows the necessity of a reform of the quarantine laws.

He calls upon the chamber to investigate the truth of the doctrine of the contagiousness of epidemic diseases, and to inquire whether the restrictions to which the doctrine has given rise should be maintained, modified, or abolished.

The diseases, to prevent the importation or propagation of all or most of which, quarantine regulations have been adopted by European states, are small-pox, typhus fever, leprosy, cholera, yellow fever, and the plague.

Small-pox he allows to be contagious; but contends, that vaccination is a surer and less expensive mode of avoiding the evil than the plan now adopted; and, if any legislation be required, it should be directed to the securing for each individual this valuable prophylactic.

From numerous observations made by him on isolated cases of leprosy, and on patients afflicted with it, confined in lazarettos, he maintains, that it is altogether uncontagious. If it were a contagious disease, it would long ago have spread itself among the population of the sea-ports, and of Paris, whither so many affected with the disease repair for relief. Moreover, in the West India Islands belonging to Great Britain, those afflicted with leprosy are not isolated, and yet the disease is not more common there than in places where the strictest measures of quarantine are established against it.

As to typhus fever, he contends, that, as it is the offspring of filth, poverty, and over-crowded districts, all that is to be done is merely to attend to cleanliness and the general health. Should any legislative measure be deemed necessary, it ought to be directed to the separation of the diseased, and not to cooping them up in lazar-houses and quarantine-stations,—the means most likely to engender, to aggravate, and to perpetuate the disease

Experience has shown, that the most vigorous measures for cutting off all intercourse with infected districts have been of no avail in preventing the spread of cholera, and that districts, in which no attempts were made to repel its invasion, were unvisited by this dreadful scourge.

While yellow fever is regulated by different laws than those which govern cholera, it defies all *cordons sanitaires*, lazarettos, and quarantine-stations. No precautions have any effect in arresting its progress. The contagionists, indeed, assert, that some populations have escaped yellow fever by isolating themselves; but they forget, that many others have had the freest intercourse with infected districts without the slightest instance of an attack occurring. The facts collected by M. Chervin, during ten years spent in visiting different countries, are more than sufficient to demonstrate, that all preventive measures are ineffective against the invasion of the yellow fever,—it being evidently produced by an effluvial affection of the air in certain localities, and not by any contagious principle capable of being imported to great distances from its source.

With regard to the plague, M. Chervin repeats what he said in a letter to the Minister of Commerce in 1830. He has no fixed opinion on its contagion or non-contagion,—having never seen it. The majority of European physicians reckon it contagious, and most of those who, having seen both the yellow fever and the plague, assert, in the most positive manner, the non-contagion of the former, believe the latter to be contagious. If, however, there be numerous testimonies to the plague's being contagious, and capable of being imported, he contends that the opposite doctrine is supported by other facts, which are entitled to as much consideration, coming as they do from men who have had the best opportunities of observing this disease. If facts be reported demonstrative of the contagion of the plague, it must be allowed that the same might be said of yellow fever; for where could we find more positive proofs of the contagion of the latter than are to be found in the report of the medical commissioners sent to Barcelona? But most of the facts therein reported have been proved to be possessed of no reality; and others have been given in a manner so inexact, that no value can be attached to them.

If, then, in the nineteenth century, facts be so imperfectly observed by a commission selected from the first medical body in France, it is possible, he contends, that those in favour of the contagion of the plague are exaggerated, if not imaginary, since they were collected at a distance, and at periods more or less remote, either by men who were not in the profession, or by those whose observations were made under the influence of a doctrine lately taught universally in the most celebrated schools. Taking into consideration, on the one hand, the manner in which the plague generally acts in the countries subject to its ravages, and, on the other, what has passed for more than a century in the great sanitary establishments of the Mediterranean, in the lazarettos of Marseilles, Toulon, Malta, Leghorn, and Trieste, where the produce from the

Levant is received, M. Chervin argues that we may, without showing too much scepticism, regard the contagious nature of this disease as a doubtful fact, which ought forthwith to be investigated, while, till the question be settled, every precaution ought to be taken. As this will best be done by instituting a set of experiments directed to the point at issue, M. Chervin points out what he conceives to be the proper mode of conducting these experiments, and offers to be the subject of these himself. In his scepticism regarding the contagious nature of the plague, he is borne out by the opinion of the Royal Academy of Medicine, which, when consulted by the Minister of the Interior on a new mode of disinfecting cottons coming from Egypt, replied, that it ought first to be ascertained if they were infected, and proposed that a set of experiments should be instituted for that purpose at Marseilles. M. Chervin immediately offered to the Academy to submit to all the experiments which it might deem proper, and begged that body to lay his proposals before the minister. This was accordingly done, but no notice was taken, either of it, or of the suggestion of the Academy.

These arguments of M. Chervin, which we merely state, are certainly very much of the nature of special pleading. We believe, that no doubt can be entertained of the contagious property of plague; but we also believe it to be well established, that this property does not operate at all times, and on all persons, with the same energy and virulence, and that its contagion requires a concurrent state of the atmosphere to give it effect. It is on this account that even experiments expressly undertaken, will not determine the point, unless they are performed at periods when the atmosphere is otherwise favourable, and in subjects who might be supposed susceptible.

It is remarkable, that neither M. Chervin nor the French government seem to be aware of the excellent and rational method of disinfecting cotton, whether raw or wrought, proposed by the ingenious Dr Henry of Manchester.

It must be considered that the sanitary system being adopted by all European states, no one state can modify its restrictions without the concurrence of the rest; for that might occur which happened in 1825, when France forced Great Britain, and the Low Countries, to re-establish their quarantine regulations, under the pain of being reckoned pestilential countries. In a note we are informed by M. Chervin, that M. Boisbertrand has boasted of having thus controlled Great Britain and Holland, though only director-general of quarantine in France. On such trifling circumstances does legislation, even in free and independent countries, sometimes turn. Because a man, whose interest it is to support the doctrine of contagion, without which the situation held by him would be altogether useless, chooses, by way of keeping up his own importance, and prolonging his possession of a lucrative office, to keep in the dark, and work on the fears of the ministry, whose servant he is, two mercantile nations are forced, for the sake of their commerce, to countenance to the utmost extent what in all probability is a delusion, and to submit to fetter their trade to avoid the greater evil from intercourse. There is no wonder that we have so many contagionists, when those who have fostered the fears and prejudices of mankind find themselves rewarded with situations of honour, power, and profit, while the philosophic inquirer after truth, opposed and thwarted on all sides, is treated with neglect, contempt, or insult, and too often left, even after the complete establishment of his doctrines, to the approbation of his own conscience, unrecompensed for the loss of health, time, and money. Both in this country and in France there are examples of men profiting by the pernicious errors which they have fostered, and enjoying wealth, power, and patronage; while the disinterested advocate of science and humanity is left to brood in obscurity over disappointed hopes, unrequited labours, and wounded feelings.

We pass over the narration of the various quibbles and subterfuges of which M. Chervin accuses the ministers of having recourse to for the purpose of evading his reasonable demand of the means of performing the experiments necessary to ascertain the contagion or non-contagion of the plague—nor shall we enter upon his demonstration of the absurdity of the sanitary regulations issued regarding cholera in France, even after the government had been made aware of the decision of the most able of the faculty, and put in possession of numerous direct and unequivocal proofs of the non-contagious nature of this pestilence. The readers of this Journal have had, we conceive, sufficient evidence placed before them in its pages to enable them to form an opinion on this subject. We hasten, therefore, to lay before them a view of the rapid sketch which M. Chervin has given of the evils produced by the doctrine of contagion.

From Volney he quotes a fearful picture of the misery and destruction produced by the prevalence of this opinion during the epidemic which ravaged Philadelphia in 1793. The wife deserted the husband—the parents abandoned their children—the dead remained uninterred in the deserted houses—the city became a desert—and the unhappy fugitives, driven by force from the villages where they sought refuge, encamped in the open fields. Carey, in his short account of this malignant fever, affirms, that of those who fell victims to the disease, " it is not improbable that a-half or a-third perished merely from want of care and attention, owing to the extraordinary panic." Who can doubt that the patients had less chance of recovery when they found themselves abandoned by those on whose attention they had a natural claim, and that too at the very time when they needed most their soothing cares. Nor was their condition much improved when they were dragged from their homes to hospitals, where, separated from the rest of the world, surrounded by the dying and the dead, they found themselves subjected to the treatment of men bribed into the service, and left to breathe their last without a friend to whom they could whisper their dying wishes.

Dreadful as this picture is, it by no means comprehends the whole of the misery inflicted by this erroneous doctrine. Men and women have been thrown alive into the pits dug for the reception of the victims of the epidemic; those whose business it was to bury the dead being too anxious to get through their revolting task, to spend time in ascertaining whether the being whom they were plunging into the putrefying mass were dead or alive. M. Chervin gives one instance, where, during the epidemic at Barcelona in 1821, a woman was rescued from this dreadful fate, and two years afterwards was in perfect health. Who can tell how many have been entombed alive, who had not the good fortune of this woman to escape from the prison-house of corruption? The history of every epidemic furnishes us with numerous authentic instances of similar atrocities.

Nor is the number of deaths from the epidemic alone increased. The law which compels every medical man to report the names of those who apply to him for aid, in consequence of the epidemic or any similar disease, degrades into an informer the man in whom the patient ought to have every confidence; people become afraid of mentioning any disorder with which they are afflicted, lest it should be taken for the pestilence; and thus many diseases are aggravated, or rendered incurable, which would, in other circumstances, have been cut short at their commencement.

The belief in contagion prevents, too, the practitioner from doing his duty as he ought. Nothing paralyzes the faculty like fear. How can that man judge calmly, and take the steps necessary for the patient's welfare, who believes that he is walking in the shadow of death, breathing a poisonous atmosphere, and that every moment spent by the sufferer's bed-side doubles the chance of his own destruction? Will such a man be able to investigate the nature of a new epidemic? Can he, in doubtful cases, examine the symptoms with sufficient minuteness to form a correct diagnosis? or will he not rather be inclined to judge from a few superficial circumstances, and consign his patient to destruction, sooner than do that which will put his own life in jeopardy? True it is, we read of men who, believing in contagion, and that they were hourly exposed to destruction, with a heroism above all praise, continued their avocations,—their strong sense of duty overcoming every other consideration. But how few such do we find; and can any one doubt that these men would have been infinitely more useful, had they conceived themselves to be free from all risk derived from the performance of these duties. When, however, as most frequently happens, the medical attendant cannot disguise his dread of contagion, the altered voice, the frightened looks, the careful avoiding of all contact with the bed, the breath, or the person of the patient, and the incessant application of the perfume or vinegar to the nose, are calculated to strike the patients with terror, and deprive them of all hope of recovery. When to all this are superadded, as occurs in some countries, dresses for medical men and nurses in attendance on the plague, grotesque in appearance, but from the association appalling to look on, and contrivances for holding communication with the sick without running the risk of coming in contact with them, what wonder if the number of the diseased be augmented, and the chance of recovery almost destroyed.

Among other plans to prevent the spread of epidemics, is drawing a line of armed men round the infected place, and confining the inhabitants, clean and unclean, healthy and diseased, within the closest limits. The consequences are dreadful to contemplate. The inhabitants, looking on their situation as desperate, give themselves up to terror and every excess. The air becomes impure, provisions become scarce, and every thing tends, not only to keep alive the existing epidemic, but to excite new and aggravated forms of the disease. In the meantime, the minds of men, intent on tracing the transmission of the contagion, neglect the local causes of insalubrity which they have in their power to remove. If Spain and the United States had employed, in cleansing the towns subjects to the visits of yellow fever, the tenth part of the sums which they have expended in the maintenance of quarantine, they would long ago have freed themselves from this scourge.

It would occupy too much space to go through each individual evil, the consequence of the belief in contagion. Suffice it to say, that *cordons sanitaires* have in some instances used their power to plunder and murder,—that shipwrecks and the loss of numerous lives, have been the consequence of ships being repulsed from harbours during storms, owing to the enforcement of quarantine regulations,—that captains of ships, bound for the continental ports of Europe, avoid taking passengers who are at all ill, lest on their arrival their jaundiced looks should be taken for a symptom of yellow fever, which has frequently occurred, and thus be forced to submit to a lengthened quarantine,—that many invalids returning to Europe, have had the benefit of their voyage rendered nugatory, in consequence of meeting on their arrival with a detention equal to the duration of their voyage. To these we might add the loss of capital,—the ruin of merchants,—the non-employment and consequent starvation of numbers who gain their bread in sea-ports, by the shipping and unshipping of goods.

But, granting every necessity existed for quarantine which the most thorough contagionist could desire, the present system of quarantine does not attain the object for which it is maintained at so great an expence. Several proofs of this are given by M. Chervin, which our limits will not permit us to quote. Even supposing, however, that quarantine measures could be rendered effectual, and that yellow fever, cholera, &c. were in the highest degree contagious, we doubt much whether the evils inflicted by the system, a few of which we have considered above, be not much greater than those which it is intended to prevent. In a word, we think that it admits of question, whether, supposing contagion to exist in a modified degree, which is all that the most violent contagionists *now* contend for, it would not be better to let it do its worst than to cause such scenes as are referred to by the author. There can be no doubt, however, of the propriety of instituting a rigorous examination of the contagion or non-contagion of different diseases. The governments of Europe should vie with each other in this cause of science and humanity. We must protest, however, against individuals being appointed to this duty whose interest it is to support the present arrangement.

We may observe, that the Chamber of Deputies remitted the petition to M. de Montepin, to report on it; that M. de Montepin drew up a report in terms highly flattering to M. Chervin; that the Chamber adopted the report, and ordered a copy of the petition to be laid before the Minister of Commerce and Public Works, which, in effect, amounts to a very strong approbation of its contents; and besides, on the motion of M. Seuné, ordered the petition to be deposited in the *bureau des renseignments.*

We strongly recommend to the reader the perusal of this, as well as the other works of M. Chervin.

Art. III.—*Essays on the Effects of Iodine in Scrofulous Diseases; including an Inquiry into the mode of preparing Ioduretted Baths.* Translated from the French of M. Lugol, Physician to the Hôpital St Louis, by W. B. O'Shaugh-

NESSY, M. D. *With an Appendix by the* **Translator**, *containing a summary of Cases treated with* **Iodine**, *either simple or combined with opium,* **mercury**, *or* **lead** ; *and directions for preparing the Iodurets of these* **Metals**, *and for detecting the adulterations of Iodine and the Hydriodate of Potash.* London, 1831. Pp. xiv. and 218.

IN the twenty-second and twenty-fourth volumes of this Journal, will be found notices of the history, preparations, and effects of iodine, as observed by Continental and British practitioners up to that time. At the date of the latter volume, this medicine had been successfully employed, if we may believe its supporters, not only in bronchocele, but in incipient mesenteric tabes, chlorosis, amenorrhœa, dysmenorrhœa, enlarged glands, chorea, *fistula lacrymalis*, paraplegia depending on tumours, &c. In all these cases, however, except bronchocele, there was something to connect them with that proteus-like cachexy scrofula. All the other diseases in which it has since been employed may be referred to the same origin, if we except hypertrophy of the heart and liver, ascites, and dropsy of the ovarium. True it is, we have heard of cases where it is said to have exerted a beneficial influence over parts, the organization of which had been previously destroyed ; but, as they have come to our knowledge in a very questionable shape, we must be excused from noticing them on the present occasion. Where the organization of a part is destroyed, we hold the empirical exhibition of a violent remedy to be quite unjustifiable.

But though it be perfectly clear to any one who will give the matter a moment's consideration, that, when the organization of a part is destroyed, no remedy can have any effect on it, and that any active medicine is likely to injure an already weakened constitution, and to hasten the fatal issue of the case, yet we find, that, on the announcement of any new powerful therapeutic agent, it is immediately applied in a variety of hopeless cases, which have no common resemblance except their incurability. It will happen occasionally, that a case diseased beyond the resources of art is either cured or alleviated during the exhibition of the new medicine, which, of course, gets the credit of it. These cases are carefully noted, while the failures are altogether omitted or explained away. While this is going on, those members of the profession who are captivated with novelties, and who court notoriety, employ themselves in lauding their favourite medicine to such an extent, that the conscientious reflecting class of practitioners, finding the unqualified praises bestowed to be contradicted by their own experience, are apt to throw it aside as an uncertain and useless, if not a dangerous, remedy.

The history of antimony in former times, and that of iodine in the present day, are striking illustrations of what we have now stated. In the case of the latter substance, there is a circumstance, too, which has contributed not a little to shake the confidence of professional men in its efficacy. The high price which it bore when first introduced to notice, tempted the unprincipled to adulterate or imitate it and its preparations; and thus we may account for the varying results obtained by different practitioners, even in that disease over which it is now reckoned unquestionably to exercise the greatest control.

The work before us consists of two portions. The one is a translation, condensed in some unimportant particulars, of three essays, published at short intervals by M. Lugol, one of the physicians of the Hôpital St Louis; for which a prize of 6000 francs was awarded him by the Institute. The other is an appendix by the translator, containing a summary of cases treated on the continent with preparations of iodine, directions for preparing the iodurets of lead and mercury, and rules for the detection of the adulterations of iodine and the hydriodate of potass.

M. Lugol's first essay is on the treatment of scrofulous diseases by iodine. Though, soon after he made use of iodine, he was convinced of its efficacy, it was not till he had employed himself for seventeen months in the collection of cases illustrative of his views, that he submitted his notions to the Royal Academy of Sciences. In that space of time he collected the detailed cases of upwards of 100 patients, in whom he, of course, found great variety, both in the seat and intensity of the disorder. The scrupulous accuracy of this first memoir is attested by MM. Serres, Magendie, and Dumeril, who personally examined and questioned all the patients under treatment, and some of those reported to be cured or convalescent. We cannot give the reader a better notion of the contents of the first essay than by quoting the following passage from the report made to the Royal Academy of Sciences by the three talented individuals now mentioned.—

"Without restricting ourselves to the order followed by M. Lugol in his treatises, we proceed to make known its principal results.

"In the first place we may observe, that he uses two preparations of iodine. The one, exclusively intended for internal administration, is a solution of this simple substance in distilled water. The others are proper for external application, whether as ointments for ulcers, pomade for friction, or watery solutions of varied strength, for collyria, lotions, and injections.

"The motives which have induced M. Lugol to employ, by preference, the *aqueous* solution of iodine, appear exceedingly plausible. So active a medicine can scarcely be administered in an hospital without inconvenience and uncertainty, except in the form of a drink. The alcoholic tincture and syrup of iodine present many disadvantages in the exact measurement and distribution of their doses; while a pint, or half a pint of distilled water, containing in solution a little common salt and a fixed quantity of iodine, affords us an easy, precise, and economical method of dispensing the remedy. Two degrees of this solution intended for the patients, and designated by the name of " Mineral Water," No. 1 and No. 2,—the first containing two-thirds of a grain, and the second one grain of iodine in solution,—have furnished the means of dosing exactly from day to day, and of recognizing the effects of what was previously employed. Thus, half of No. 2 is the first allowance, the entire of No. 1. the second, and finally the whole of No. 2.*

" As to the preparations intended for the external treatment, these are unctuous substances of a certain weight, and associated in determined and successively increasing proportions with iodine, ioduret of potassium, (hydriodate of potash,) or with the protoioduret of mercury.

" These simple means have sufficed M. Lugol in the treatment and cure of numerous cases, twelve of which, selected from the different species of scrofulous affections, are described in the memoir. Three relate to ulcerated tubercles, cured in three, seven, and twelve months. Two cases are also described of ophthalmia and coccyza, one of which yielded to a treatment of forty-eight days, while the other was prolonged to the ninth month. A case of fistulous abscess, deeply situated in the cellular tissue, has required nearly a year's care. Four cases are also recorded by M. Lugol of that frightful form of the disease denominated " dartre rongeante," but which the author names the *estheomenic* (or corrosive) scrofula. Finally, a case of scrofulous caries is detailed. This last form has generally been found very intractable. M. Lugol is only able to advance this single case of cure. It will be remarked, also, that the protoioduret of mercury was used, and that there still remains a small fistula as yet unhealed, but which appears to have a tendency to cicatrization.

" All these cases are given at great length; they present complete accounts of the history and symptoms of the patients at the time of their first examination, and before the treatment was commenced. Many of the cases have been figured, and a record is presented of the modifications which have supervened during the treatment, as noticed twice every month, until the cure or the discharge of the individual.

" The author of the memoir has carefully noticed the effects produced by the iodine on the animal economy. Applied externally, its local action has always been very sensible; it determines on the surface of ulcers a feeling of smarting, accompanied with painful itchings. *This application to the diseased surfaces changes their appearance, and frequently produces as appreciable an effect as that determined by mercury on venereal ulcers.* Moreover, the mode of its action does not appear to be invariably the same; sometimes the iodine seems to melt down and resolve the tubercles; sometimes, on the contrary, it urges them on to rapid suppuration. At other times the painful sensation appears to diminish in proportion to the healing of the surfaces, an effect which is perhaps dependent on habit, nevertheless some ulcers remain sensible while the curative process is not at all established.

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* M. Lugol subsequently altered his formula, as will be seen hereafter.

" Internally administered, and always in small doses, and with the most prudent slowness, the ioduretted water constantly excites the appetite, and appears to increase the urinary and salivary secretions. Sometimes, but very rarely, it has become purgative to so considerable extent, that its use was necessarily suspended at different intervals from two to three days each. In other and still rarer cases, in which the solution of iodine appeared to occasion pain in the stomach, the wine of quinquina, given according to the directions of M. Coindet, in a dose of two or three ounces, put an end to the troublesome symptoms. M. Lugol, however, always declined as much as possible this association of remedies, in order to avoid complexity in the results of his treatment.

" Iodine administered in this diluted form has never caused emaciation, nor produced the expectoration of blood or other accidents which many have imputed to its action.

" From the contents of the first memoir, it appears that M. Lugol has treated with iodine alone, in seventeen months, at the Hôpital St Louis, 109 scrofulous patients, of which 61 were males, and 48 females.

" That at the close of last year, 39 (29 females, and 10 males,) were still under treatment.

" That 30 (17 males, 13 females,) had quitted the hospital with marked improvement.

" That in 4 cases (2 males, 2 females,) the treatment was ineffectual.

" Finally, that 36 (13 males, 23 females,) were discharged completely cured.

" The author concludes, from all the facts he has collected, and the researches he has conducted, that iodine deserves to be considered the most efficacious remedy in scrofulous diseases, since it has constantly arrested their progress, or at least exercised a salutary action in the treatment of all tubercular tumours, even when it has not evidently accomplished their cure. He therefore believes that the introduction of this remedy into medicine is one of the most valuable acquisitions the healing art has made in modern times."—Pp. 5—9.

The second memoir consists of an inquiry into the effects and mode of employment of ioduretted baths in scrofulous diseases. On this the commissioners gave no opinion, as M. Lugol afterwards competed for the Academy's prize, and they were unwilling to anticipate their future judgment. We shall briefly give the substance.

In a short introduction, M. Lugol takes notice of those of his Parisian brethren who have used iodine. Professor Dumeril had successfully applied it in scrofulous cases, previous to the publication of M. Lugol's first memoir. " Magendie has used iodine in many ulcers of the face frequently observed at Salpetriere, and which are generally scrofulous sores degenerated into a cancerous condition." The hydriodate of potass he has more recently employed with success in epilepsy and hypertrophy of the heart. MM. Serres, Baron, Bailly, and H. Cloquet, have successfully exhibited this medicine. Since iodine has been prescribed in the doses and manner suggested in the first memoir, no dangerous consequences have ensued. This second memoir, supplementary to the first, and giving an account of what M. Lugol claims as his invention,—the ioduretted baths, he was induced to publish, " lest the tradition of their effects, experiencing the common fate of all oral traditions, might have been an incomplete, and consequently dangerous announcement." In the sequel he has shewn the bad effects of ioduretted baths prepared in stronger proportions than he has recommended.

Wood appeared to be the best substance for the bathing troughs.

In constructing his first formula, the author " took into consideration, 1. The greater surface presented to the immediate action of the remedy; 2. The facility with which all the parts of the liquid could come in contact successively with the skin, and yield it a portion of iodine, so that the remedy would act less in proportion to its relative than its absolute quantity, compared with that of the fluid in which it was dissolved; 3. The increase of energy which might result from the elevated temperature of the bath in the action of this volatile remedy."—P. 57.

By the first formula, the bath was " composed of one ounce of the hydriodate of potass, and a half-ounce of iodine, dissolved in twenty ounces of distilled water, and next diluted in the quantity of water necessary for a bath; but this bath having produced intense rubefaction of the skin, I reduced it in the sequel one-fourth, and composed the bath for an adult with six drachms of the hydriodate of potash, and three of iodine." This, as it stood at first, he considered would prove weak, and he calculated on increasing it gradually. Experience, however, convinced him that in general it was too strong, and eventually it became the most powerful which he ventured on using. The strongest which he at present employs consists of six drachms of the hydriodate of potash, and three of iodine, for an adult. The following tables exhibit the strength of the baths adapted to different ages.

Baths for Children.

Age.	Quarts of water.	Troy grains iodine.	Troy grains hydriodate of potass.
4 to 7,	36	30 to 36	50 to 72
7 to 11,	75	48 60 72	96 120 144
11 to 14,	125	72 to 96	144 192

Baths for Adults.

Degree.	Quarts of water.	Troy drachms iodine.	Troy drachms hydriodate of potass.
No. 1,	200	2 to 2½	4 to 5
No. 2,	240	2 2½ 3	4 5 6
No. 3,	300	3 3½	6 7

The effects in some cases were rubefaction of the skin and intense smarting, more especially on the surface of diseased parts. The small quantity of iodine contained in these baths must strike every one. M. Lugol is inclined to attribute their surprising efficacy to the heat and moisture promoting the absorption of the iodine.

M. Lugol made some experiments to determine the respective action of the hydriodate of potass, and of iodine, in the ioduretted baths. He always considered the hydriodate of potass calculated merely to dissolve the iodine, and no otherwise participating in the efficacy of the baths; and experiments led him to the conclusion that their energy is " almost exclusively due to the quantity of iodine added in excess." We have not room for the experiments themselves, but give merely M. Lugol's conclusion, referring the reader to the work itself for the details, which are well worth perusal.

" 1. The hydriodate of potass has scarcely any action whatever in the dose of three ounces to each bath.

" 2. Iodine should be regarded as the active principle of the baths.

" 3. The proportion of iodine should generally be from two to three drachms a bath, and very seldom above that.

" 4. Pure or simple iodine is not completely soluble in a bath; and in that case, its action being unequal, may give rise to local accidents; and it may also be deficient in its general action on the economy.

" 5. Iodine previously dissolved in alcohol does not continue in a state of solution when diluted with the bath; and it, moreover, produces olfactory phenomena, which may proceed to a species of drunkenness, or even to decided or durable cerebral congestion.

" 6. The most certain mode of preparation is the preliminary solution of the iodine in the hydriodate of potash.

" The efficacy of ioduretted baths in scrofulous diseases is, I believe, already demonstrated by the consequences which naturally flow from the notions I have published on the use of iodine in these diseases. But, besides their general utility, the baths still offer peculiar advantages; that of a substitute for internal treatment, the doses in which may be diminished to different degrees, according to the necesssity of the case, and that of affording us a mighty auxiliary in certain cases of scrofula, which the internal and external modes of treatment hitherto known have only altered in the most tedious manner."—Pp. 75, 76.

The third essay contains an account of the effects of iodine in tubercular scrofula—in the scrofula of mucous membranes, especially ophthalmia—in cutaneous scrofula—in the scrofula of the cellular tissue, and in scrofulous diseases of the bones.

Of the first, he gives four cases where a cure was effected in very desperate circumstances. Of the other diseases mentioned above, twenty-three cases successfully treated are quoted, many of which, when the treatment was begun, were apparently hopeless. It is impossible to quote a satisfactory abstract of these cases; they are minutely but concisely stated in the work before us, and to it we must refer the reader. We cannot, however, pass over the section on *the efficacy of exercise in cases of white-swelling of the feet, knees, hips, &c.* From the cases reported, it appears that exercise in the ward or open air was enjoined in those cases while the iodine was exhibited. In all, this proved successful, and we are naturally led to inquire to what this result, so contrary to that which might have been ex pected, is owing. Although the way in which M. Lugol accounts for it is far from being satisfactory, yet in the absence of any other we lay it before the reader.

"The study of scrofula, as regards its causes and diagnosis, denotes that this disease has for its general character an original weakness which arrests the developement of organs, but which renders them subsequently subject to a sudden and exaggerated increase. Rest has even been regarded as a debilitating agent; it is the ordinary associate of all antiphlogistic systems of treatment. The most vigorous and robust constitution would inevitably be weakened and brought to a state of etiolation by long-continued repose. If rest thus debilitates the vigorous, still more should an invalid of primary weak constitution be enfeebled by its operation, and his malady proportionally increased.

"But the matter is not one of argument alone; visit those patients confined to bed for six months, and on a debilitating regimen. They are pale, emaciated, weak and depressed. I admit that the motion of a diseased joint is attended with some inconvenience, but the advantages derived from it are great, beyond all proportion. In fine, for three years that I have followed this method, I have never been induced to change it, or even modify it, but for a transitory period in some unusual cases."—Pp. 149, 150.

We quite agree with the translator that M. Lugol's facts are more valuable than his reasoning on this subject, and we suspect that it will be some little time yet before this part of his system be followed.

We pass to M. Lugol's observations on the mode of prescribing the preparations of iodine. Of both the tincture and syrup of iodine he disapproves, on account of their being apt to be precipitated on the parietes of the stomach, and produce evil consequences. At first, as mentioned above, a solution of iodine in distilled waters was exhibited, but the slight solubility of the medicine, and its liability to decomposition when kept, especially in the light, induced him to adopt the following formula.

Ioduretted Mineral Water.

	No. 1.	No. 2.	No. 3.
℞ Iodine, .	gr. ¾	gr. j.	gr. 1¼
Hydriodate of Potass,	gr. 1½	gr. 11	gr. 11½
Distilled Water,	℥ viij.	℥ viij.	℥ viij.

This is perfectly transparent, of a beautiful orange-colour, and keeps for a considerable time. When, as for children, it is deemed expedient to mix it with sugar, it should be done extemporaneously, as in a few hours it would be decomposed, and its activity partly destroyed. At first he prescribes two-thirds of No. 1, and in the second fortnight he gives the whole. During the fourth fortnight, or beginning of the fifth, he gives a grain daily, and usually continues the same quantity to the end of the treatment. In some cases he has prescribed one-fourth grains daily, and more rarely one-half, but he never exceeds that quantity. It will be seen, then, that M. Lugol's extreme dose is only one-half of Dr Coindet's usual one.

For preparing the mineral water on a large scale, he dissolves one scruple of iodine, and two of hydriodate of potass in seven ounces of distilled water. This may be diluted so as to form any of the first formula, and in private practice may be more convenient. M. Lugol began by giving six drops in the morning fasting, and six in the afternoon, before dinner, in half a glass of water flavoured with sugar. Every week he increased the dose by two drops, till it reached thirty or forty drops daily. For children under seven he recommends two drops twice a-day, to be increased gradually to five. From seven to fourteen he seldom exceeds sixteen drops daily, and does not conceive it prudent to do so. The employment of the concentrated drops prevents the exact quantity of iodine from being determined so precisely as in the mineral water. The daily quantity should always be given in divided doses, otherwise it is apt to pass off by the kidneys without exercising any therapeutic influence over the diseases in which it is usually employed. This fact, however, may be taken advantage of in some cases; and M. Lugol has administered it with success in abdominal dropsy. When constipation ensues he either gives calomel pills and continues iodine, or suspends its use, and in the interval exhibits the milder aperients.

For the external local treatment of disease, M. Lugol employs the following preparations.

1.—*Ioduretted Ointment.*

℞ Iodine, . .	gr. xii.
Hydriodate of Potass,	℈ iv.
Fresh Lard, . .	℥ ij.

This ointment ought to be prepared fresh.

2.—*Ointment of the Proto-ioduret of Mercury.*

	No. 1.	No. 2.	No. 3.
℞ Proto-ioduret of Mercury,	℈ ij.	℈ iij.	℈ iv.
Fresh Lard, . .	℥ ij.	℥ ij.	℥ ij.

"This ointment is, when properly prepared, of a canary-yellow colour; sometimes it presents a dead-green tint, which is owing to the presence of some protoxide of the metal. At other times its colour approaches to the orange, from deuto-ioduret being formed. The latter admixture must be carefully avoided, the deuto-ioduret of mercury being nearly as escharotic as the deuto-chloruret or corrosive sublimate."—P. 170.

3.—*Solution of Iodine for External Use.*

	No. 1.	No. 2.	No. 3.
℞ Iodine, . .	gr. ij.	gr. iij.	gr. iv.
Hydriodate of Potash,	gr. iv.	gr. vj.	gr. viij.
Distilled Water,	℔ j.	℔ j.	℔ j.

This is useful for injections.

4.—*Rubefacient Solution of Iodine.*

℞ Iodine, ...	ʒ iv.
Hydriodate of Potash, .	℥ j.
Distilled Water, . .	℥ vj.

This should be kept in a bottle with a glass stopper, as it rapidly corrodes corks. Besides serving as a rubefacient, it may be used for the preparation of five or six local baths and ioduretted poultices. *Wooden* boxes should be used for the baths.

5.—*Caustic Iodine.*

℞ Iodine, ...	℥ i.
Hydriodate of Potash, .	℥ i.
Distilled Water, . .	℥ ij.

This preparation differs from the ioduretted solution only in its greater degree of strength. M. Lugol employed it when the first formula proved too weak. He has also used it to "repress excessive granulations, and to modify the state of the red hypertrophied skin, impregnated with pus, surrounding certain scrofulous ulcers and tubercles."

We have now taken a brief view of the first part of the work before us; its merits may be summed up in the words of the translator.

> "The chief merit of M. Lugol's Essays will, I believe, be found to consist in the precision and skill with which he has investigated the proper forms and doses in which iodine should be administered. Next to this his constancy and patience in the routine of treatment will perhaps be estimated. On both these points mainly depend the numerous and astonishing successes described in the cases, and which, authenticated as they are by the personal testimony of some of the most distinguished physicians in the world, are calculated, at the same time, to afford sincere pleasure to the medical philanthropist, and well-founded hope to the subjects of this hereditary evil." —P. 87.

Of the second part, the work of the translator, we shall merely observe that it forms by no means the least interesting part of the volume.

We extract Dr O'Shaughnessy's remarks on the adulterations of iodine.

> "From the high price at which iodine was sold on its first introduction into medicine, a great inducement was afforded for its adulteration, and accordingly, with a clumsiness and ignorance only equalled by their shameful cupidity, some druggists were in the habit of mixing the iodine with a liberal per centage of *charcoal*, the protoxide of iron, plumbago, or the carburet of that metal. Although the price of that article has fallen to 1s. 6d. the ounce, with many eminent and honourable wholesale houses, still, perhaps, from the difficulty of abandoning old habits, some dealers yet practise the admixture above-mentioned. The fraud may be at once discovered by heating ten grains, (accurately weighed), of the suspected samples, in a glass tube, and continuing the heat till no violent vapour is evolved; if any residium remain, it indicates an adulteration, the extent of which may be ascertained by the weight of the fixed matter. Perhaps an easier process is by throwing the suspected specimen into strong alcohol, in sufficient quantity. All the foreign ingredients above-enumerated, remain undissolved. By either of these methods, the mixture of charcoal, the protoxide of iron, or the carburet of iron, may be discovered. I should not omit to add, that I have met with one specimen much more artfully and scientifically adulterated, and in which the fraudulent ingredients were at the same time soluble in alcohol, and volatilized by heat. I forbear, however, alluding to this mixture more minutely,

because the fraud is comparatively so difficult of detection, that describing it would perhaps only lead to its more general practice."—P. 210.

In conclusion, we would observe that, from a review of all the authentic cases in which iodine has proved successful, we are inclined to think that all its effects may be referred to its power of acting as a tonic, and either stimulating the capillaries to a more healthy action, or exciting the absorbents, and that in cases where these effects can be of no service, it is worse than useless to exhibit it.

But whatever may be its effects in other diseases, we must allow that over bronchocele and the various forms of scrofula, it exerts a beneficial influence. Whether it have any effect over the strumous diathesis, remains yet to be proved. May we hope that among our countrymen there may be found one endued with the patience and talent of Lugol, to investigate this portion of the subject? We cannot help thinking, that it would be more satisfactory and useful for practitioners to turn their attention to this, than to make random experiments on diseases which are either not well understood, or in all probability incurable.

ART. IV.—*A Treatise on the Diseases of the Liver, and on Bilious Complaints; with Observations on the management of the health of those who have returned from Tropical Climates, and on the Diseases of Infancy.* By GEORGE HAMILTON BELL, Fellow of the Royal College of Surgeons, Edinburgh, late Residency-Surgeon, Tanjore. Edinburgh and London, 1833. Pp. xii. and 152.

NEXT to diseases of the lungs and brain, those of the liver seem to be most common. This is not to be wondered at if we consider the luxurious style of living of the higher ranks, the dissipation of the lower, and the thousands who annually return from intertropical climates, suffering from various affections of this important organ. The well-known fact, too, that a predisposition to hepatic disease may be communicated from parents to their offspring, would lead us to believe that bilious disorders will go on increasing in a fearful ratio, so long as the exciting causes mentioned above shall continue to operate.

It was not to be supposed that a class of diseases so frequently occurring, and so important, would fail to arrest the attention of the studious and industrious of the profession. Accordingly, besides the notices of the older pathologists, there are scattered through different medical journals numerous cases illustrative of the various forms and terminations of affections of the liver. Those which occur in intertropical regions have been accurately described by Chisholm, Marshall, Johnson, Annesley, and Ballingall; while such as occur in more temperate climes have been delineated in the writings of Portal, Saunders, Farre, Baillie, Abercrombie, and a number of others of less note. This mass of information one would think stood more in need of arrangement than addition; yet, extensive as it is, it has failed to secure uniformity of opinion among the members of the profession. That there is still considerable difficulty in the diagnosis of many affections of the liver, no one will doubt who is aware of the cases on record, where able and experienced men gave the most contradictory opinions, and where not only the nature, but the seat of the disease had been mistaken. But even when these are ascertained, there is great difference of opinion regarding the treatment which ought to be pursued. Authors and practitioners have been too much accustomed to look exclusively to that form of the disease which has most frequently occurred to them, and to recommend in all cases that plan of treatment which has been successful in the class of affections with which they have most frequently met. Hence we find some trusting solely to blood-letting, purgatives, and the antiphlogistic regimen; others to the free use of mercury; while a third party have employed every mode of counter-irritation, from mustard poultices to the actual cautery. All have successes to boast of, and failures to explain away or lament, which will ever be the case where narrow and partial views are taken of any disease.

In these circumstances it becomes the practitioner to proceed in a spirit of judicious eclecticism, and to bear in mind the modifications induced on disease by age, style of living, and constitution. By acting thus, the results of his practice will be more satisfactory to himself and others; and though it is impossible, in the nature of things, for him always to meet with success, he will yet have the consolation of reflecting, that, if he failed to cure or retard the disease, he neither aggravated it, nor accelerated its fatal termination. By acting otherwise, and pursuing a routine mode of treatment, he may indeed save himself much anxious thought, and may even perhaps have it in his power to boast of considerable success; but ever and anon there will occur cases which will be at variance with all his preconceived opinions, and the results of which, if they do not injure his professional character, will most assuredly neither increase it, nor prove satisfactory to himself. Considering then the difficulty of the diagnosis, the discrepancy of opinion regarding the treatment, and the routine method adopted by many, a treatise like the present, which promises to furnish the means of explaining and reconciling apparent contradictions, and to exhibit the views of one who has enjoyed extensive opportunities of studying all the varieties of hepatic disease, both in India and this country, cannot fail to be useful; and, with the view of making known its contents, we shall lay before our readers an abstract of the more important parts.

The volume contains a well-written preface,—some preliminary observations on inflammation,—the pathology and treatment of what the author calls, sero-hepatitis,—puro-hepatitis,—chronic sero-hepatitis,—chronic puro-hepatitis,—functional derangements of the liver,—disorders of tropical valetudinarians,—diseases of children,—irregular complaints of infancy, and remarks on the age at which children born in India should be sent to Britain, and the management of their health in this country.

Mr Bell's nomenclature and classification we consider objectionable. Every one knows that inflammation is influenced by the structure of the part in which it occurs; and we do not see the advantage of encumbering medical language with such terms as sero-phlegmon, puro-phlegmon, and muco-puro-phlegmon, even were they founded on more scientific principles than they are. But let Mr Bell speak for himself.

> "Inflammation, when seated in diaphanous membranes, or in parts in which the healthy circulation consists of colourless blood, differs in symptoms, course, and termination, from the same affection when it occurs in parts in which the vessels, when in health, convey red blood. The distinction I regard as of sufficient practical importance to justify the subdivision of phlegmonous inflammation, into what may be termed *sero-phlegmon* and *puro-phlegmon;* to which may be added, *muco-puro-phlegmon;* the first making its attacks on naturally colourless parts, and possessing all the characteristics of inflammation, viz. unnatural redness, heat, pain, and swelling, and having a tendency to end in effusion of serous fluid; the second being that affection in those vascular parts, in which the healthy circulation being already red blood, there is little or no apparent change, no great increase of heat, in which the pain when present is obtuse, and where there is a tendency to the deposition of *pus;* and the third, attacking mucous surfaces, in which there are pain, heat, swelling, and unnatural redness, terminating in change of secretion and ulceration. *Sero-phlegmon*, according to this classification, will take place only where there are colourless capillary vessels, which in a state of health exclude red blood. It is accompanied with pungent pain, because the vessels are overdistended, and contain a foreign fluid; and by swelling, because the capacity of the vessels is increased, and probably because their coats and the surrounding cellular tissue are tumefied, in consequence of the irritation produced by the unnatural state of the cir-

culation. The causes of the increase of heat are more obscure. It is unnecessary, however, to weigh the conflicting theories which have been broached on this subject. We find that the mere change of the circulating fluid (as in bleeding) materially increases the temperature of the skin; the altered condition of the circulation, therefore, will account so far for the presence of this symptom, arterial blood being hotter than the colourless fluid. But this is insufficient to explain the whole of the increase of temperature in a morbidly inflamed part; and, as in many other instances, the true explanation must be sought in the inscrutable operation of the laws which regulate the vital principle. The terminations of this description of inflammation, as already hinted, are resolution, adhesion, and effusion. Mortification, which is generally classed as a termination of inflammation, is not peculiar to that affection, but will follow any disease or accident which destroys or greatly diminishes the circulation of a part. *Puro-phlegmon* again, or suppurative inflammation, being a morbid change in blood-vessels, in which the natural circulation is red, is not attended with prominent symptoms. The capacity of the arteries is probably increased, but their contents are apparently the same. Here, as the circulating blood is not perceptibly changed in character, the sensation at least of heat is not perhaps increased. Resolution and suppuration are the terminations of this species of inflammation. The formation of matter may be indicated by a feeling of pulsation in the part; but, generally speaking, there is no topical symptom. There are, however, constitutional symptoms; the suppurative process being marked by alternate fits of shivering and fever. Muco-puro-phlegmon, which I have classed as a third species of inflammation, appears to me to be modified, by its occurring in parts in which the capillary vessels are adapted to the twofold purpose of circulating either red or colourless blood, as functional purposes may require. I shall not have occasion, however, to consider muco-puro-phlegmon while treating of hepatic affections; and I have referred to it merely, as deserving of attention in the classification which I have ventured to suggest."—Pp. 8—11.

It will be observed, that many of Mr Bell's assertions quoted above might easily be questioned, and that, instead of new notions, he has given us merely new terms, which, besides, do not render our information on the subject more accurate or precise. We have given a longer extract, that the reader may understand the principle of the nomenclature which Mr Bell applies to diseases of the liver.

The author divides *hepatitis* into *sero-hepatitis* and *puro-hepatitis;* and each of these he subdivides into acute and chronic. By *sero-hepatitis*, he means inflammation, confined to the serous covering of the liver, unconnected with inflammation of its substance. Now, we doubt much whether the serous covering of the liver be ever inflamed without involving the subjacent parenchyma, except in cases of extensive *peritonitis* ; and, after perusing Mr Bell's description and plan of treatment, we are inclined to think that he has overlooked the fact, that the train of symptoms marking the disease which he has thus denominated, shows that the substance of the liver is more or less affected. He has given us neither reasonings nor dissections to prove the correctness of his notion of the subject; and we very much suspect, that he has allowed his theoretical notions to warp his view of the subject. We consider, then, that his descriptions would have been as intelligible and more accurate, had he adhered to the old division of hepatitis into acute and chronic, and described what he calls sero-hepatitis and puro-hepatitis, not as distinct species, but only as varieties of the same disease. If the reader, then, will understand sero-hepatitis to be, not as it is defined in the work before us, "inflammation of the serous covering of the liver," but inflammation of the surface of the liver, comprehending both the peritoneal covering and the immediately subjacent parenchyma; and if, also, he will understand by puro-hepatitis, deep-seated inflammation of the liver, he will find Mr Bell's work highly instructive, and will lament that the sound practical information which it contains will be so apt to be overlooked in consequence of its being connected with a faulty classification. Begging the reader to bear in mind the observations which we have just made, we shall occasionally, in noticing this work, use the author's nomenclature in the restricted sense which we have suggested, not in that which the etymology of the terms might suggest.

The symptoms which occur in sero-hepatitis are much more acute and better marked than those of puro-hepatitis; and hence the disease is sooner subjected to treatment. As the symptoms are familiar to all, it is unnecessary to repeat them here. We shall, therefore, limit ourselves to mentioning the treatment recommended by the author. The practice of "pushing mercury," Mr Bell considers to be frequently highly dangerous, and almost always unnecessary. Blood-letting, saline purgatives, with tartarized antimony, blisters, and a gentle alterative course of mercury, are what he recommends. Of the dreadful effects of exhibiting mercury indiscriminately in all cases, he gives the following instance.

> "Several years ago, while in India, I was called to a station at some distance from my own, to see a civilian of high rank, who was considered by his medical attendant to have fallen into a state of great danger from an attack of hepatitis. This patient had been about twenty years in India. I found him in a state of low delirium, with an alarming tendency to dozing; his pulse was upwards of 120, thrilling, and weak; his face swollen to double its natural

size; and his mouth, throat, and tongue, in a terrible condition of ptyalism. I was told that he had been suddenly seized with excruciating pain in the right side, with fever, and all the other symptoms of acute hepatitis; that he had been very largely bled generally; that local depletion, with leeches, had been carried as far as possible; and that he had also been blistered. By those means, it appeared that the pain had been completely removed from the side. Calomel had likewise been administered to a great extent; and the mouth had suddenly become affected, attended with great pain. The swelling of the mouth, tongue, and throat, had increased to the state in which it was when I first saw the patient; but the pain had suddenly ceased, and delirium and comatose symptoms had supervened. The hepatic affection having been thus, to all appearance, mastered, the dangers now were sphacelation of the mouth and throat, and cerebral effusion. We therefore turned our whole attention to the head and circulation. But every attempt to lower the pulse failed, and the delirium, though it intermitted, was not manageable. The patient sunk, and died; and on examination after death, *the liver was found perfectly sound.* The inflammation had been overcome by the decided antiphlogistic practice pursued; and, although the exhibition of mercury was according to rule, the case was not in my opinion one which called for the exhibition of mercury as a sialogogue, and the patient had been perhaps too long exposed to an Indian climate to admit of even the necessary depletion with safety, far less the deleterious effects of 'pushing large doses of calomel.'"—Pp. 18, 19.

Such are the effects of routine practice. Blood-letting must be proportioned to the strength of the patient, and may be either general or topical, or both. The Indian leech affords an excellent means of combining both, for it "is not only so large as to be capable of containing from one to two ounces of blood, but it leaves a wound more like that of a bayonet than a leech bite; so that a dozen or twenty leeches will not only draw a great quantity of blood, but will do so with wonderful rapidity."—P. 22. Should blood-letting not succeed in allaying the irritability of the stomach, Mr Bell advises the exhibition of a scruple of calomel. To restore "the general health of the patient, change of air, and a course of chalybeate and aperient medicine should be prescribed; while temperate habits, regular exercise, and avoiding exposure to the sun, and over-fatigue, are the most likely means of escaping a relapse. The terminations of sero-hepatitis are resolution, adhesion, effusion, chronic inflammation, and change of structure.—Pp. 27, 28. Resolution is marked by an abatement of all the symptoms. Adhesion is most likely to happen when inflammation occurs on the convex surface of the great lobe, and may be inferred "when the acute disease is followed by a dragging uneasiness on the right side, a difficulty of lying in bed on the left, and a liability to biliary affections, and other hepatic derangements. In such circumstances, the patient will escape a recurrence of inflammatory attacks only by the strictest attention to his health; the more complete establishment of which should be, for some time at least, his principal object. When dropsy follows hepatitis, there will be every reason to believe, that change of structure has taken place in the peritoneal covering of the liver, and that the whole gland is involved in the disease. Such terminations are rather to be regarded as the result of repeated attacks of inflammation, and the consequence of dram-drinking, or other injurious habits, than of a single attack of sero-hepatitis."

Chronic *sero-hepatitis* is sometimes the sequel of the acute disease; when this is not the case, it is the result of the same causes, and the symptoms "are weight and feeling of fulness in the right hypochondrium; shiverings, and occasional and irregular feverish attacks, with heat of skin and throat; a foul, brown, or white tongue, with prominent papillæ; the pulse is generally hard, but not much accelerated; an increased and unhealthy condition of the biliary secretion; irritability and derangement of the stomach and bowels, and not unfrequently dysenteric symptoms; a sallow or jaundiced skin; urine scanty and high-coloured; pain over the right clavicle, or in the direction of the right scapula, with inability to lie comfortably on the left side; sleep disturbed."—P. 68.

Venesection is seldom necessary. Topical bleeding, and a succession of blisters must be employed. The bowels are to be freely opened at the commencement, and afterwards carefully regulated. In some cases, mercury must be cautiously and steadily persevered in, till salivation be produced. Whether it ought to be continued after, must be duly considered, as an unnecessary perseverance in the use of this medicine may keep up the morbid condition of the liver, of which the following instance is given by the author.

"At sea, August 1827.—Lieutenant C—— had been five or six years in India, and when he consulted me, was on his voyage home on sick certificate. He had by this time been some weeks on board ship. He told me that his principal disease in India had been dysentery, but that latterly his liver had become affected, and had required much attention before he sailed. He now suffered from weight and uneasiness in the right side, bad nights, and an abominable taste in his mouth. His bowels were very torpid; fæces dark-coloured; his appetite good; his skin was jaundiced, and the conjunctiva of a brownish-yellow colour; tongue foul; pulse slow. He informed me that he had taken a great deal of blue pill, and that, acting on the advice of the medical man who had attended him in India, he still persevered in the daily use of the medicine. On examination, I found slight fulness on the right side, apparently from enlargement of the liver. There was, however, no pain or tenderness on pressure. There had been no shivering fits or night perspirations, and no other appearance of organic disease of the liver. I told Mr C. that whatever might have been the condition of his liver in India, I did not believe that it was now diseased; that his principal illness appeared to me to arise from his over-exciting the liver by taking mercury unnecessarily. I advised him to leave off the blue pill entirely, and to substitute a grain of aloes and half a grain of gum mastich as a dinner-pill. I also prescribed quinine and sulphuric acid, with moderate and plain diet. The effect of this change was in every way satisfactory. The skin soon lost its mahogany hue; the uneasy feelings in the region of the liver ceased; and his spirits, which were naturally buoyant, became exuberant. A costive habit was his only complaint at the end of the voyage."—Pp. 104, 105.

Sometimes it may be advisable to treat chronic sero-hepatitis without mercury at all. "After a succession of blisters, it may become advisable to resort to issues or a seton. The cure as soon as possible should be assisted by change of air, and by regular exercise, and a carriage. When the inflammatory symptoms are removed, a course of chalybeates or other tonics should be exhibited; and hot sea-bathing, alteratives, and aperients, from time to time prescribed. It is of very great importance, both during the treatment of these cases and after recovery, that the patient should be warmly clad. But care should be taken to avoid sleeping in a heated apartment, or with too many bed-clothes. In this, as in every hepatic affection, where it is practicable, exercise on horseback should be taken. I may add, that I have been frequently consulted by persons who had frightened themselves with the persuasion that they had liver complaint, from their having a fixed and weary pain, increased on pressure, under the margin of the ribs. The absence of every other symptom of hepatic derangement leads to farther inquiries, and in all such cases I have generally found that the pressure of the arm of a chair while seated, or too low a writing table, or a long rubber at billiards, or some other such cause, has given rise to the symptom which has occasioned the false alarm."—Pp. 69, 70.

Puro-hepatitis Mr Bell defines to be inflammation of the liver, having a tendency to end in abscess. In this case there is every reason to suppose that the hepatic artery is involved. The serous covering is uninjured at first, and hence we may account for the less prominent nature of the symptoms. It is always a very insidious disease, and though in the highest degree dangerous, is apt to be overlooked both by the patient and his attendant, till the disease be nearly beyond the resources of medicine. An extensive abscess is frequently formed before the patient feels any thing materially wrong with him, and the existence of this is sometimes suspected first from some accidental occurrence. Mr Bell's remarks on this form of hepatic disease we consider valuable, and the cases by which they are illustrated are highly striking. We quote the following, with Mr Bell's observations.

"The following case, which is that of one of the most able men who ever reached India, well illustrates the serious nature of puro-hepatitis. Mr Assistant-surgeon H., a stout man, about thirty-five years of age, arrived at Tanjore on the 25th March 1826, in attendance on the late Bishop Heber. He went to the church on the following day, Good-Friday, made a round of calls, and dined at the Residency. On calling for him on the forenoon of the 27th, I found him confined to his sofa. He told me he had a slight feverish attack, but that he expected his usual dose of oil, which he had taken, would put him to rights again. As his hand was hot and dry, and his pulse quick, I advised him to take some tartar emetic solution. He objected to this, but agreed to take a dose of compound powder of jalap. When I saw him in the evening, I found him still feverish; his bowels had been opened, but the evacuations, though apparently bilious, were fetid and unwholesome. I prescribed effervescing draughts, and gave him at bed-time six grains of calomel, with some James' powder, prescribing the black draught in the morning. 28th March.—Mr H. appeared better; his medicine had operated, but I found his pulse high, and his skin dry. He told me that his pulse was naturally a very quick one; and he expected, he said, that as soon as his medicine had freely operated, he should feel well. *Rep. Tart. Antimon.* gr. iss. *Aq. font.* lib. ii. *M. Ft. solut. cochlearia duo quaque hora sumenda Pomeridianum.* As he had again become feverish, and as his bowels were still in a very unwholesome condition, I repeated the black draught, and prescribed pills, containing a grain and a-half of calomel, every two hours. *Cont. solut. diaphoretica.* 7 P. M.—Stomach extremely irritable; pulse full and hard; much uneasiness in the head. A dozen of leeches were applied to each temple. 9 P. M.—The above symptoms being much aggravated, I withdrew, by venesection, twenty ounces of blood, which removed all the uncomfortable sensations in the head, rendered the pulse soft, and was followed by perspiration.—29th March, 2 o'clock A. M. I was called up to see Mr H., who had been suffering severely from griping pains in the abdomen, particularly in the situation of the left extremity of the arch of the colon. There was no pain on pressure in any part of the belly. The nurse, by Mr H.'s orders, had administered a glyster, containing a tea-spoonful of laudanum. Though this had produced some relief, as the pain continued urgent, a large blister was applied over the part complained of.—6 A. M. Mr H. ascribes the tenesmus which disturbed him during the night to the mercury, having suffered, he said, in the same way before from a similar cause; and he thinks, that now all that is necessary to his recovery is bland food. As his tongue, however, was foul, and his pulse, though soft, was 108, while his bowels had not yet been opened by the medicines administered last night, I persuaded him to take the following medicines: ℞ *Extract. Colocynth.* gr. ij. *Hydrarg. Submur.* gr. ij. *M. ft. pil. in hor. sumend.*—10 A. M. Complains of acidity of the stomach, for which he has taken a dose of magnesia, and one or two doses of the subcarbonate of potass.—1 P. M. Has had several stools, pulse still high, and tongue foul: skin natural heat, no thirst, no uneasiness in the bowels; the blister has risen well. Arrow-root and bland diet.—Evening. Pulse still very high, tongue foul, perspires profusely. ℞ *Pil. Hydrarg.* gr. vi. *Pulv. Jacob.* gr. ss. *M. ft. pil. tertia quaque hora sumenda.*—30th, 2 A. M. Called up in consequence of Mr H. having been attacked with severe vomiting. I found he had taken some laudanum, which had quieted the stomach. Has not any fixed pain; *is sure, he says, his liver is sound; pressure on the region of the liver produces no uneasiness.* I resolved, however, to continue the mercury, though Mr H. objects, and says his mouth is already touched.—6 A. M. Gave a black dose with salts; pulse still very high, from 106 to 110; tongue foul; skin *wet.*—10 A. M. No stool. ℞ *haust. purg.*—2 P. M. Has much griping; no stool. *Habeat Extr. Colocynth.* gr. ij. *Hydrarg. submur.* gr. j. *in pil. quaque hora.* The belly was fomented, and an anodyne glyster administered —*Vespere,* Has had three stools; feels easy, but is very weak; pulse 116, and weak; constant perspiration. I ordered a tea-spoonful of port-wine every hour.—31st, 2 A. M. Again called up to Mr H. He has had no sleep, and feels irritable and restless. No local pain; but there is much depression. He had vomited some sago soon after taking it. Pulse and skin continue as above. *Habeat Hydrarg. submur.* gr. v. *in pilula bihor. sumend. Cont. vin.*—6 A. M. *Cont. ut supra.*—Noon, To have chicken-broth or arrow-root. *Cont. med. et vin.*—*Vespere, Cont. ut supra.*—1st April, 6 A. M. Continues weak; pulse 110; tongue foul; perspires profusely; no stool. *Rept. haust. purgans* ii. oz. *statim sumend.*—10 A. M. *Rept. haust.*—Noon, Has severe griping; no pain on pressure. The bowels have not yet been acted upon. *Habt. Tinct. Opii.* gr. xl. *statim. Rept. Pil. Colocynth. et Calomel. ut supra præscripta. Vespere,* Bowels open; griping gone. *Cont. vin. u. a.*—2d April, Has had five stools during the night; they appeared bilious, but were fetid. Had a return of severe griping, attended by retching. I administered during the night, in different doses, fifty-five drops of laudanum, and applied hot salt to the abdomen. Pulse 120, and weak; sweats profusely. *Rep. Hydrarg. submur.* gr. ij. *Opii.* gr. ¼. *M. ft. pil. bihora sumend.* Continue wine and nourishment.—*Vespere,* Has had three stools since morning. *Cont. ut supra.*—11 P. M. Symptoms of internal derangement continue; *mouth not all affected; no fixed pain any where. Rep. Hydrarg. submur.* gr. xx. *ft. bolus tertia quaque hora sumendus.*—3d, 6 A. M. Has not slept during the night. Pulse 120. Complained much in the course of the night of what he called spasm of the diaphragm, from which he says he has suffered in former illnesses. Blisters were applied along the margin of the ribs, which, with an anodyne draught containing thirty drops of laudanum, and the application of hot bags of sand, relieved him. *Cont. med. ut supra.*—10 A. M. Pulse 126, and weak; skin and tongue as above. *Habt. Tinct. Digital.* gr. x. *statim.*—Noon, Pulse 118; other symptoms as above. *Rept. Tinct. Digital. u. a. Cont. Calomel. ut supra.* Continue nourishing diet and wine.—1 P. M. Has had a return of spasms in the abdomen. *Habt. Tinct. Opii* gr. xx. *quam primum.* —2 P. M. Still complains of spasmodic pains. *Rept. haustus e*

Tinct. Opii. gr. xxv. *statim.*—Evening,—Feels easy; pulse 124; tongue furred; profuse sweating. *Cont. Calomel. &c. ut supra.*—4th April, I sat up with Mr H. the greater part of the night. I continued to administer calomel combined with opium, of the latter of which, in the course of the night, he had four grains; and I also gave him, in hopes of keeping down the pulse, thirty drops of the tincture of digitalis in different doses.

"Mr H. though prepared for death, thought that he had been reduced in former illness to a state of more imminent danger, and was persuaded that he owed his life to the perseverance of his then medical attendant in giving him wine and nourishment, and he requested me to act in a similar manner. I therefore continued, till he could no longer swallow, to administer wine, &c. Mr H. retained his consciousness until two o'clock in the afternoon, and died a little after four.—*Sectio Cadaveris.* An abscess, containing upwards of a pint of matter, was found in the great lobe of the liver, on the point of bursting into the abdomen. It was seated nearly in the centre of the lower surface of the lobe. On the upper surface of the great lobe there was an old adhesion of considerable extent, between the diaphragm and the liver. The gall-bladder was full of green-coloured bile. The bowels throughout showed that there had been much irregular spasmodic action in them. The cardiac end of the stomach was full; the pyloric end was contracted. The duodenum was also contracted. These parts may have been affected by the pressure of the abscess on them. In this case, it is remarkable that the patient, a man of great judgment and perfect coolness, who was thoroughly persuaded that he understood the nature of his illness, never suspected disease in his liver. He said, that in a former illness, an adhesion had taken place between the diaphragm and lungs, and to this he ascribed the spasms in the diaphragm. I examined the chest, and found that the pleura were attached almost throughout their surfaces. The adhesion of the liver to the diaphragm will, however, better account for the symptom in question. Although, throughout my attendance on Mr H. I feared that some great internal organic lesion existed, I could not decidedly say what it was. The absence of pain in the right side or shoulder, the patient's being able to lie on either side, and his not confessing to his ever having had any rigors, appeared to me almost like proof that there was no abscess in the liver; and I confess, that I went on very much in the dark, administering to symptoms as they occurred, and most anxious to credit Mr H.'s assurances, that he had suffered in the same way in former illnesses. I have since ascertained, that, three weeks before my attendance on this gentleman commenced, and previously to his having marched upwards of 200 miles down the Coromandel coast of India for ten days, during the hottest season of the year, he had suffered at Madras from repeated attacks of shivering. There can be little doubt that these symptoms marked the formation of matter; and it adds considerably to the interest of this fact, that so little were those shivering fits connected in Mr H.'s mind with his fatal illness, that in our many conversations on his case, he never once alluded to them."—Pp. 32—39.

"When an individual has been exposed to the exciting causes of liver complaints, an attack of shivering, if unconnected with intermittent fever, even although there should be no symptoms referable to the liver, ought to lead to the most anxious inquiry into the condition of that organ; and, if rigors be followed by irregular feverish symptoms, a clammy skin, and disorder in the *primæ viæ*, there will be reason to suspect the existence of muco-hepatitis. If, in addition to these symptoms, there be morbid sensibility in the region of the liver, pain on the top of the right shoulder, a dry cough, uneasiness while lying on the left side, a foul tongue, thirst, and unwholesome alvine dejections, the urine depositing a lateritious or pinky sediment, there can be little doubt in the diagnosis."—Pp. 43, 44.

In the treatment, the first object must be to arrest the progress of the disease before suppuration has commenced, or if that be impracticable, to endeavour to produce absorption of the matter, and failing that, to promote as far as possible its safe evacuation. To prevent suppuration, the means to be resorted are, 1*st*, vascular depletion, 2*d*, the bringing the constitution under the influence of mercury, and 3*d*, counter-irritation. Venesection is to be had recourse to only when the constitutional symptoms run high; local depletion answering best in other cases. Mr Bell prefers leeches to cupping, as he believes them to be "less exciting to the patient, and their bites often act usefully as a counter-irritant;" fomentations are to be afterwards freely used, and the leeches may again be applied if necessary. Should local depletion fail, blood must be abstracted from the arm, due regard being had to the condition of the patient. During treatment, topical bleeding may become repeatedly necessary. Salivation is to be produced as soon as possible, "an effect of mercury which is the more satisfactory, as proving that the cure is within our reach. For in cases in which abscess exists, although the mouth sometimes becomes ulcerated under the use of mercury, true ptyalism does not take place." Mr Bell has succeeded in producing salivation with the blue pill, after calomel has been used in vain. He cautions us against pushing mercury too far, "for if the disease be overcome, the patient may be suddenly brought into a state of danger, from the extent to which the medicine may affect him." When the breath becomes tainted after the administration of a large quantity of mercury, there should be a remission, and when the gums swell, and the saliva increases, mercury should be suspended. Counter-irritation is a valuable resource, and a favourite one among the native practitioners of India. The actual cautery is freely employed by them, and with great success, if one may judge by the number of Hindoos who are marked on the right and left side, with the searing iron. Mr Bell recommends the surgeon to obtain, if possible, permission to apply the iron freely over the whole region of the liver. Tartar emetic, mixed with mercurial plaster in the proportion of a scruple to a drachm, he has found highly serviceable. "A succession of blisters may be applied, or, what is nearly as good as the actual cautery, lunar caustic paste." The measures for procuring the absorption of the matter, should be persevered in till a cure be effected, or till it become hopeless. Mr Bell thinks that the patient has the best chance of recovery when the matter is discharged into the colon. In all cases where the abscess bursts internally, and the patient survives, the cure must be trusted to nature, taking care to support the strength, and to attempt, if possible, cautiously to assist the evacuation of the matter. When the abscess points externally, and there is no hope of forcing it back, or when the patient's strength is failing, it should be freely opened, and as much of the matter evacuated as possible. The parts should be poulticed, and every encouragement given to the discharge. The patient must be kept quiet, and tonics and anodynes administered. Mr Bell has great doubt whether the opening of an abscess ever proves successful when it is extensive and deep-seated in the substance of the liver. The rules given for the after-treatment are judicious.

"The first object must be to get the bowels into order. This will require carefully regulated courses of alteratives, aperients, and anodynes; the stomach and bowels must be strengthened by tonics and bitters, and the strength supported by nourishing diet of easy digestion, and wine or malt liquors, which last will often be found a good substitute for stronger drink. Repeated changes of air are necessary, and a sea voyage will be found of great service; while the mind should be as much as possible amused. If the disease have originated in intemperate habits of living, these must be carefully changed; bearing in mind, however, that sudden changes, or inveterate habits of intemperance, are frequently not less injurious than perseverance in the pernicious habit. When the disease has been caused by exposure to a tropical climate, no time should be lost in proceeding to more temperate regions."—Pp. 152, 153.

Mr Bell having given us cases where extensive disease of the liver existed without being suspected, furnishes us with an instance where a patient was treated for hepatic diseases, which dissection showed not to have existed. It was, like the one which we have given, the case of a medical man.

"On the 5th November 1825, I was called to a station twenty-five miles distant from my own, in the Tanjore district, to see Mr Assistant-surgeon S. When I arrived at 8 o'clock P. M. I was informed that he had been suffering for several days from fever, and that there latterly had been a complete obstruction of the bowels, which had just been overcome by repeated glysters. The pulse was 86, and not hard; tongue clean; skin moist; but Mr S. complained of having every now and then cold sweats. Attempts to lie on the left side produced pain and coughing. There was no enlargement of the liver perceptible; but hard pressure under the cartilages of the ribs on the left side gave him some pain. There was much irritation of the stomach; and Mr S. said he had not retained any thing he had swallowed for five or six days. I applied thirteen leeches over the stomach, and along the margin of the ribs of the right side, by which means about twenty ounces of blood were removed, and I commenced the use of calomel, of sixteen-grain doses, every three hours. 16th November.—Symptoms continue much the same as on the first report. There is still uneasiness, with cough, when the patient lies on the left side, and the stomach continues very irritable. The greater part of the calomel swallowed during the night has been vomited up, unchanged in its appearance. I applied a large blister over the stomach, gave an effervescing draught, and directed one drachm of mercurial ointment to be rubbed in on the thighs and legs every three hours. In the afternoon the irritability of the stomach appeared to have subsided, and I endeavoured to give some nourishment, but Mr S. could swallow only a little tea, which was followed by extremely acid eructations. No stool since yesterday. I gave one scruple of rhubarb, and two scruples of magnesia; and as the blister had only caused redness, I allowed it to remain. It did not produce vesicles until after it had been twelve hours applied. 7th November, 6 A. M.—Has not slept; has still occasionally cold sweats; pulse 86, and soft; can lie on the left side without much uneasiness; skin of natural heat; tongue quite clean, without being unnaturally red; no thirst. On taking a little tea without milk he vomited, and brought up the rhubarb little changed in its appearance. Much troubled by acid eructations. *Habt. Magnes. carbonat.* ʒss. *statim.* ℞ *Hydrarg. submur.* ℈j. *sexta quaque hora samend. Cont. Ung. Hydrarg. fort. u. a.*—Noon, No more vomiting; has had two small dark-green coloured stools; thinks the magnesia relieved the acidity of the stomach; other symptoms as above. I repeated the magnesia, and continued the mercury.—*Vespere,* No change. Mr S. feels perfectly easy; *says he has no doubt an abscess has formed in the liver,* and he begins to fear his head is becoming affected. I continued to push the mercury, rubbing in, and substituting for the calomel five grains of the blue pill every three hours.—8th November, Is persuaded that there is not a chance of his living. Having arranged his private affairs, he requested me to leave off administering medicine; but as his pulse kept up, I persuaded him to allow me to persevere; in the evening there were symptoms of aberration of mind. *Cont. Med.*—9th November, I now found the symptoms of approaching dissolution to be so decided that I left off the use of medicine; wetting the patient's mouth occasionally with weak wine and water. Mr S. continued to sink, and died, without apparent suffering, at 4 o'clock on the morning of the 11th.—*Sectio cadaveris.* On examination I found *the liver of its* natural size, and apparently healthy. Leaving it in its place, I proceeded to examine the stomach, which externally presented a very extraordinary appearance. To the extent of five inches from the pylorus, it looked more like a piece of gut very much contracted, than the smaller bag of the stomach. The cardiac end was full of fluid; and, on laying it open, I found that it contained, in an unchanged state, almost all the medicines and nourishment which I had administered. The coats of the pyloric division of the viscus were thickened to a very remarkable extent, and the pyloric orifice appeared to be completely strictured. The whole of this portion of the stomach gave indication that there had existed a high degree of inflammation, so that the vascular coat looked almost as if blood had been extravasated in it. The contents of this end of the stomach were a black mucus, adhering in some parts firmly to the corrugated villous coat. I found the pancreas double its natural size, and schirrous throughout its whole substance. On cutting open the liver, I found *its internal structure to all appearance healthy, and its peritoneal covering had not anywhere formed adhesions* to the surrounding parts. The gall-bladder was gorged with black bile. There were no other morbid appearances. I was informed by the hospital-assistant at the station, that Mr S. had experienced dreadful sufferings on the 2d, 3d, and 4th days of November; and that, from the commencement of the attack, (31st October) he had been constantly retching. Mr S. himself told me during his illness, that he had long suffered from dyspepsia, which he and others had ascribed to an hepatic affection. He had been recently under treatment for liver complaint when in Europe on sick certificate; and since his return to India, he had suffered severely from the Mysore (an intermittent) fever. The interest of this case arises from the circumstance of the patient having been a medical man of much intertropical experience, sound judgment, and perfect coolness, who had studied his own case for five years, and who, during that period, had been at different times under the treatment of other practitioners; yet we find him regarding a disease in his pancreas and pylorus as an hepatic affection,—taking gastritis for hepatitis, and obstruction at the pyloric end of the stomach for abscess of the liver. Nor is it undeserving of being mentioned, that since my return to this country, while conversing with one of the most eminent medical practitioners in this city on the diseases of the East, he happened to refer to an obstinate case of hepatitis in a medical officer in the Madras establishment, who had been lately under his charge. I immediately discovered that his patient had been the gentleman whose case I have just detailed; although I had some difficulty in persuading the distinguished physician to whom I have alluded, that his late patient had died with a liver, not only perfectly sound, but one which, to all appearance, had never been diseased."—Pp. 59–63.

If acute puro-hepatitis be so obscure, the chronic form of the disease must be still more so. Mr Bell's description of it is short but accurate, and the treatment recommended judicious.

Of tubercles, hydatids, indurations, &c. of the liver, Mr Bell has given us no account, because, "although they may be suspected during treatment, the knowledge of their existence is commonly of little use either to the patient or his physician, while it not unfrequently happens, that dissections exhibit extraordinary lesions of the liver, which during life had given rise to no symptom referable to that gland." In many of these anomalous affections, interference does harm, and may rouse them to fatal activity, while there is no chance of doing good. It is better to treat symptoms as they occur. "A small topical bleeding, followed by blisters, may keep down any inordinate action; and well-managed purgatives may do good. If mercury should appear to be necessary, it ought to be exhibited with extreme caution, and with unremitting attention to the state of the patient."

Our limits will not permit us to examine in detail the author's observations on jaundice—the disorders of tropical valetudinarians—the diseases of children—the age at which children born in India should be sent to Britain,—and the management of their health in this country. Suffice it to say, that they are altogether practical and well worth perusal. Being written in a popular manner too, we would consider them highly useful to those who have children born in India committed to their care, and to tropical valetudinarians, who so frequently take it upon them to *doctor* themselves. The latter are not aware of the mischief they do by tampering with their already weakened constitutions. Accustomed as they have been to the use of mercury in most of the diseases incident to intertropical residents, they are too apt, on their return, to regard it as a sovereign remedy "for all the ills that flesh is heir to," and may excite or keep up irritation in the liver by an injudicious or untimely use of this mineral.

We have now pointed out the defects and merits of this work. We are happy to say that the latter far outweigh the former. It rarely happens that the same individual is gifted at once with the talent of minute observation and that of generalization; and we conceive that those who are much engaged in the practical details of the profession, would in general do well to confine themselves to facts, and the simple arrangement of them, and leave to others the task of generalizing. In a science so extensive as medicine, general principles must be slowly founded on the observations of many individuals variously situated; and he whose situation permits him to collect facts and observations, loses his time, and injures his usefulness, when he wanders from his task, and involves himself in theories. Had Mr Bell avoided this, his book would have been almost unexceptionable. As it is, we view it as a most valuable contribution to the pathology of the liver.

ART. V.—1. *An Essay on the Structure and Functions of the Skin; with observations on the agency of atmospheric vicissitudes, through the medium of the Skin, in the production of affections of the Lungs, Liver, Stomach, Bowels, &c.* By WILLIAM WOOD, M. D. Member of the Royal College of Surgeons of London, and Physician to the Newport Dispensary. Edinburgh and London, 1832. Pp. viii. and 172.

2. *Treatise on the Diseases of the Skin, founded on new researches in Pathological Anatomy and Physiology.* By P. RAYER, D. M. P. Consulting Physician to the Dispensaries of the Philanthropic Society, Physician to the Central Bureau of Hospitals, Associate of the Royal Academy of Medicine, &c. Translated from the French by WILLIAM DICKINSON, Member of the Royal College of Surgeons. London, 1833. Pp. xxviii. and 398.

THE investigation of the physiology of the skin is both difficult and important. The difficulty of the task is clearly demonstrated by the various opinions entertained by able physiologists who have directed their attention to the subject, each of whom has endeavoured to support his doctrines by an appeal to direct or indirect experiments. The importance of the investigation will be admitted by every one who for a moment reflects that, till the functions of the skin be thoroughly understood, it is impossible that accurate notions can be entertained of the nature and treatment, not only of what are called cutaneous diseases, but also of such as are produced or aggravated by its unhealthy state, or by the influence exerted on it by external agents.

If the doctrines regarding the physiology of the skin be various and contradictory, it is not for want of experiments. These have been accumulated by the industry and ingenuity of a host of inquirers, more or less enlightened and qualified for the task. To institute new experiments, then, without first investigating the source of fallacy in the old, would obviously be worse than useless, as it would only lead to increase the difficulty and confusion. Dr Wood, sensible of this, has examined the experiments and reasonings of the most celebrated inquirers who have preceded him, bringing his own to bear on the points requiring elucidation. The work in this way becomes valuable, as exhibiting a condensed view of the most important inquiries and observations regarding this subject, which are scattered over numerous volumes, not always accessible to the student.

The essay is divided into two parts. The first contains a short introduction—the anatomy of the true skin—the functions of the skin, an account of the mucous body, cuticle, nails, and hair. The second consists of observations on the agency of the skin in the production of disease, and on the prevention of diseases by the regulation of the skin. The introduction briefly sets forth the importance of the subject. The section on the anatomy of the true skin unfolds, according to the best writers, the structure, properties, and chemical composition of this portion of the integuments; and that on the functions of the skin, furnishes an examination of the experiments and reasonings of a number of British and continental inquirers, with the author's observations corroborative or subversive of their accuracy.

The functions of the skin, according to the author, are four,—secretion, absorption, the formation of inorganic coverings, and the sense of touch. We think that he might have included under secretion, the formation of inorganic coverings, which is undoubtedly owing to that process.

Besides the follicular lubrication proper to certain regions of the body, there is a secretion formed without the agency of any glands, which, when it occurs in its usual small quantity, is known by the name of the *insensible perspiration*, but, when increased, forms what is called *sweat*. This is always in a liquid state. The latter differs from the former only in being too copious to be taken up by the surrounding atmosphere. Hence the same quantity of the secretion, which in a warm dry state of the air, when its capacity for moisture is great, would constitute merely insensible perspiration; in humid or in frosty weather, when the atmosphere is capable of absorbing little moisture, would give rise to copious sweating. "In the experiments of Dr Fordyce and Sir Charles Blagden, in which there must have been a very uncommon activity of the cutaneous exhalants, as the body was exposed to an atmosphere heated considerably above the temperature of boiling water, no sweating was observed, plainly in consequence of the very great avidity with which air at such a temperature imbibes moisture."—Pp. 17, 18. That there is a continual exhalation from the skin, appreciable, though frequently unperceived, any one may satisfy himself, by introducing his hand into a dry glass vessel, the sides of which will soon become humid. The moisture at last descends in small streams to the lowest part, and may then be collected in small quantities. Dr Wood details the experiments of the older investigators, Sanctorius, Dodart, Keill, Bryan Robinson, Rye, Linning, and Home, among whom may be classed Charles II. who, deigning once to make an experiment, found that he lost two pounds three ounces in playing fives. The source of the discrepancy and errors of the writers now mentioned, he investigates at some length with considerable ingenuity, and traces them all to two sources; first, to their estimating the entire loss by insensible excretion, "there being but few attempts to distinguish that which is lost by the skin from that which is lost by the lungs;" and secondly, to their having no adequate means of ascertaining, or their conceiving it of no consequence to ascertain, the amount of the pulmonary excretion. To these we think a third may be added, the non-consideration of the influence of the various *ingesta*, and the different states of the atmosphere. Besides, Sanctorius and followers were led into much profitless speculation and error, by a notion which he entertained and inculcated, that health depended upon the establishment of some fixed proportion between the sensible and insensible excretion, and by his attempt to construct a set of aphorisms founded on this doctrine. The absurdity of this it would be useless in these days to point out.

The discovery of the composition of atmospheric air gave a new turn to the investigation. The experiments of Lavoisier and Seguin, though constructed with great ingenuity and accuracy, and usually regarded as entitled to confidence, are liable to some objections. Seguin inclosed himself in an air-tight bag, the mouth of which was drawn close over his head, and tied. "To enable him to breathe without interfering with the air within the bag, the funnel end of a tube was glued round his lips, while the other extremity issued from the bag by an air-tight aperture, opposite his mouth. Thus, the whole exhalation of the skin was retained by the bag, and nothing escaped except from the lungs by expiration. The difference between the weight of the body before it was enclosed in this apparatus, and its weight after being divested of it, shewed the whole loss in a given period, both by the skin and by the lungs. The difference between the weight of the body after it was enclosed in the bag, and its weight just before it was divested of it, equalled the loss by respiration alone in a given time, which quantity subtracted from the whole loss, determined, as above afforded, the amount of loss by the skin alone. It is obvious, that the loss by the lungs, determined in this manner, includes that by the evolution of carbon, as well as that by watery exhalation," P. 23. The results are given at length by Dr Wood, both in Troy and French weight, and the objection that the state of the body thus enclosed is not so near to the ordinary circumstances in which it is placed as to give accurate results, is clearly stated and supported. His examination of Lavoisier and Seguin's experiments, he sums up with the declaration, that "no experiments are to be relied on, as exhibiting the true extent of the secretion by the skin, unless the absorbing power of the atmosphere is allowed to exert its full effect as in the natural circumstances of the body."

The method followed by Cruickshank and Abernethy, with the result obtained by the latter, is next mentioned, and some experiments made by the author, are detailed. These we shall give at length.

"On the 28th of September 1830, about noon, the thermometer in my apartment being at 66° Fahrenheit, I introduced my hand into a glass vessel capable of holding about three pints. I had previously taken little exercise, and my pulse was beating 84 in the minute. Around the mouth of the jar was pasted one extremity of a bladder, both ends of which were cut away; and when my hand passed through the bladder into the jar, the other extremity was bound to my wrist with a ligature, not so tight as to interfere in any degree with the circulation. The exact weight of the jar and bladder was before ascertained, to avoid what I considered a defect in the trials of Cruickshank and Abernethy, who weighed the fluid collected from the jar without taking into account the quantity, amounting at the least to several grains, with which its surface must have remained bedewed. To cause the deposition of the fluid taken up by the air within, I applied cold to the outer surface of the jar during the experiment. At the end of an hour I withdrew my hand; and on weighing the jar, I found that it had gained thirty-two grains in weight. On one portion of this fluid, muriatic acid produced no change; on another, the *liquor potassæ* had no sensible effect; a third portion reddened litmus paper slightly; and a small portion, evaporated in a watch-glass, left a slight film on the glass.

"On the 21st of October, I repeated the foregoing experiment about the same hour, while the thermometer was, as before, at 66° Fahrenheit, and my pulse was only 78; at the end of an hour the quantity collected was only thirty-two grains. This quantity corresponds closely with the quantities collected in the same time by Cruickshank and Abernethy. In a subsequent experiment at the same hour, and while the temperature of the apartment and my pulse were the same as in the second experiment, I collected twenty-five grains only. On the 25th of October, after walking a mile, I collected thirty-two grains. On this occasion, the thermometer was at 61°, and my pulse, when I introduced my hand into the jar, was 84; but before the close of the experiment, it had fallen to 79. At nine o'clock of the evening of the 26th of October, on repeating the experiment as before, the quantity obtained was twenty-six grains only. The thermometer was at 62°, and my pulse 80. On the 27th, about the same hour, I collected about twenty-three grains, the thermometer being about 62°, and my pulse 75.

"In rendering such experiments applicable to the determination of the whole amount of insensible perspiration, the principal difficulty is met with in estimating the proportion which the surface of the hand and wrist bears to the whole surface of the body. Abernethy, as mentioned above, made this proportion as one to thirty-eight and a-half; Cruickshank considered it as one to sixty. On this point Cruickshank is certainly in error. If Abernethy's plan of taking the estimate were as sound as the diligence with which he prosecuted the investigation is great, we might rely securely on his result. But the soundness of his plan is to be doubted. He reckons the surface of his hand and wrist at seventy square inches; that of the whole body at 2700 square inches, or above eighteen square feet. His estimate of the superficial area of the hand and wrist I have reason to think is near the truth, having found it to correspond both with my own measurements, and with the report of the glove-makers. His estimate of the superficial area of the whole body appears to be too high. I have not been able to make any exact trials on this point myself; but the best authorities do not make it exceed sixteen square feet, or 2304 square inches. I am disposed to think, therefore, that the proportion of the hand and wrist, taken to the extremities of the bones of the arm, does not fall below one to thirty-two. The mean quantity obtained, by comparison of the six experiments detailed above, is 28.33 grains per hour for the hand and wrist, which, if the above proportion be adopted, gives per hour for the whole body, 1.88 oz.; and in twenty-four hours, 45.12 oz. or near 4 lbs. Troy. The quantity here stated is considerably above that brought out by the experiments either of Seguin or Abernethy; but as, on reviewing the experiments and calculations, I can find no error, I am disposed to think that it cannot be far from the truth. It is true the temperature during these experiments was somewhat above the mean temperature of this climate, but it cannot much exceed the medium artificial warmth to which our bodies are exposed within doors." —Pp. 29-33.

Now, it strikes us that the experiments detailed above are liable to the same objection as those of Lavoisier and Seguin, that the hand, being confined in a glass vessel, is not exposed completely to the influences to which the skin is usually subjected. The temperature of the apartment was ascertained; but that of the air contained within the glass jar must have been considerably lower, as cold was applied to the outer surface of the vessel during the experiment. Dr Wood's experiments, then, though not liable to all the objections to which those of Seguin and Abernethy are subject, are still far from giving accurate results. It is of little consequence, except as a matter of curiosity, to ascertain the exact quantity perspired. It is, however, impracticable. Experimenters have not taken into consideration the influence of the various *ingesta*, of idiosyncrasy, and state of the mind, and unless uniformity could be obtained in all these conditions, it is impossible that the results can be either accurate or uniform. Even could this uniformity be secured, experiments would give only the amount of the cutaneous exudation of the part or parts subjected to experiment, under the particular circumstances in which it was situated at the time when the investigation was carried on, for it remains yet to be proved, that the ratio of perspiration is the same in all parts of the body, and we know, that it varies according to the state of the digestive organs, and the season of the day or night. Certain principles, however, have been established by experiment and observation. It has been ascertained, 1*st*, that the cutaneous excretion is always going on in greater or less degree; 2*d*, that the quantity varies according to the state of the atmosphere and the degree of bodily or mental exertion; 3*d*, that it is materially diminished during the first stages of digestion, at least in weak people, and in the after-part of the day, and increased towards the end of that process and during the night; 4*th*, that the presence of moisture on the surface is no proof of increased cutaneous exhalation; and 5*th*, that the quality of this excretion is modified by the general state of the health, and by peculiarity of constitution. To these five heads we think may be referred every thing that is useful in the discoveries of both the older and the more recent investigators.

Dr Wood investigates the amount of the pulmonary exhalation. This has been variously stated by different authors. The results of Lavoisier and Seguin are liable to this objection, that the quantity given is made up of the loss by watery exhalation, together with that by the evolution of carbon. We quote from the work before us the results obtained by those inquirers, who have confined their attention to the watery exhalation of the lungs, to which we shall add the experiments of Dr Wood. "Sanctorio made it half a pound daily. Hales rates it at twenty ounces, Abernethy at nine ounces, Menzies at six ounces, and Thomson as high as nineteen ounces in twenty-four hours. To satisfy myself on this head, I made the following experiments: Having fitted a large cork into the mouth of a glass jar capable of containing about three pints, I passed two glass tubes through the cork, so that I might breathe into the jar, while the air afterwards escaped by the other. The jar was placed in a vessel of cold water, that the expired air, being cooled, might deposit its moisture. Then endeavouring to imitate natural respiration as exactly as possible, I continued for an hour to direct the air of each expiration into the jar. Having repeated this experiment several times, about mid-day, I found the average quantity, determined by weighing the jar, to be 117 grains. When the same experiment was repeatedly made in the evening, between eight o'clock and midnight, the average amounted to 129 grains. If the mean of these two numbers be taken, we obtain for twenty-four hours very nearly six ounces, which agrees with the earliest statement by Sanctorio, and with that subsequently made by Menzies. It differs also but little from the quantity of watery exhalation deducible from the experiments of Lavoisier and Seguin. For, if the entire loss by the lung in twenty-four hours is eighteen ounces, and if, according to the testimony of Allen and Pepys, eleven ounces of solid carbon are thrown off in that time, there will remain just seven ounces for the amount of the watery exhalation. It is worthy of remark, that this watery exhalation of the lung is at its maximum in the evening, or just at the time when the cutaneous exhalation is at its minimum. This balance between the exhalation of the skin and that of the lung, points out the importance of the function of the skin, both as a source of disease in the lung, and as a channel of relief when it becomes actually affected."—Pp. 36–38.

Dr Wood, after stating briefly the chemical qualities of the sensible and insensible perspiration, gives the opinions of various authors on the question, whether oxygen be consumed at the surface of the skin, while carbonic acid gas is generated in the same way as in the lung? In giving the chemical qualities of the perspiration, he seems to have overlooked, or to have been ignorant, of the researches of Anselmino and Gmelin, which the reader will find detailed at the 445th page of the 29th volume of this Journal. On the question of the skin giving off carbonic acid, he takes the affirmative side, but gives no experiments in proof of its taking place. His reasoning in support of this opinion amounts to this, that positive evidence is superior to negative, and that those whose doctrines he supports, seem to have performed their experiments in a mode preferable to that of their opponents.

On the difficult question of cutaneous absorption, Dr Wood offers no new experiments, having limited his task to an examination of the labours of others. Still this is a very interesting portion of the work, as the author points out many of the sources of the contradictory results obtained from various experiments, and several fallacies which seem to have crept into, and to have been overlooked in the reasoning of those who deny the existence of cutaneous absorption. It would be impossible to abridge, in a satisfactory manner, this part of the essay, we must therefore refer the reader to the book itself, satisfied that, though well acquainted with the various writings on the subject, he will derive both pleasure and information from a perusal of this portion. We must express our surprise, however, that no notice has been taken by Dr Wood of the experiments and observations of M. Collard de Martigny, an account of which appeared in the twenty-ninth volume of this Journal, page 444.

On the remaining functions of the skin, viz. the production of inorganic coverings, and the sense of touch, the author offers nothing new. The latter subject is not sufficiently discussed; though, since Dr Wood had nothing additional to offer, it would have been of little use merely to abridge the views and experiments of others.

Dr Wood in his account of the *mucous body*, introduces some topics, interesting to the non-professional as well as to the professional reader. The questions, whether the mucous body be vascular or inorganic, whether it exist in any other than the black varieties of men, and whether it be composed of one or several layers, are discussed at length, and the opinions of various authors who have investigated these subjects are briefly stated. The author comes to the conclusion, that there is a mucous body in all races of men, situated between the *cutis vera* and the cuticle; that it is organic; that in the black tribes it is composed of several layers; and that it is the seat of colour in all the varieties of the human race. "The mucous body, in the negro, possesses nearly the same thickness as the cuticle; and it may be presumed, that it is somewhat thinner in the mulatto, as well as in the distinct coloured races intermediate between the negro and European. The colours which it communicates to the surface, appears to be reducible to five; 1. white; 2. yellow, or olive; 3. red, or copper-colour; 4. brown, or tawny; and 5. black. The white colour belongs to all the European nations, except the Laplanders, to the western Asiatics, as the Turks, Georgians, Circassians, Persians, and to the northern Africans. The yellow, or olive, occurs in the Tartar races who inhabit Central and Eastern Asia. The red, or copper-colour, is confined to the native tribes of the New World. Brown, or tawny, is the colour of the Malays, and of the inhabitants of great part of the Indian Archipelago, and of the South Sea Islands. Black, of various tints, sooty, tawny, ebony, and jet, prevails throughout the interior of the African continent, in Australasia, and some parts of America. These, however, are to be regarded merely as the predominant colours in the several regions; in individuals throughout all of them, there are many varieties; and as, in the white races, individuals, families, and even nations, are met with, whose complexion borders on that of the coloured races, so, in the coloured races, both individuals and tribes are found now of a lighter, now of a darker tint, than that of the region to which they belong. In America, fair tribes have been observed in several quarters, as in Peru, near the sources of the Oronoko, and on the borders of the United States. In the Friendly Islands, many of the women are as fair as those of Spain and Portugal. Albinos, or those individuals whose integuments are entirely destitute of colouring matter, are not peculiar to any race. They are occasionally met with in the white nations; more frequently among the negro tribes. Their skin has an unnatural white tint, usually of a waxen appearance; their hair being also destitute of colouring matter, is of a milk-white, and their eyes are red, owing to the defect of the pigment of the iris, and of the *pigmentum nigrum*. To the albino variety also, should be referred the pied appearance of the skin, which has been observed in some negroes; the bodies of these are black, with patches of white in different places, without any sign of disease in the skin. Buffon fancied that these pied negroes must be the progeny of a black and an albino; but in all the cases distinctly reported, both parents appear to have been black. They are therefore partial albinos of the negro race. In some negro families there is a hereditary tendency to the occasional production of an albino; and hence, in particular districts, the occurrence of this anomaly has become more frequent. But there is no sufficient evidence that there are, as some have asserted, any distinct tribes of albinos in any part of the world. There is no record of the character of the offspring from the intermarriage of two albinos; and when an albino intermarries with a black, the progeny, though sometimes an albino, is more usually black."—Pp. 75–78.

To the investigation of the existence and properties of the mucous body, Dr Wood subjoins a discussion of the question of the derivation of mankind from one pair. The hypotheses of Buffon, Kaimes, Blumenbach, Pritchard, and Lawrence, are examined, and the author comes to the conclusion, the proper one, as we think, that the human race is derived from one pair. Dr Wood next considers "what progress has been made in the application of known or probable causes to the explanation of the prominent varieties which originally gave rise to the whole discussion." Quoting from the work of Mr Lawrence, the principal marks by which are distinguished the five families to which Blumenbach referred all the varieties of the species, he examines the two hypotheses brought forward to explain this variety. These are, 1*st*, that the original pair were white, but, under the influence of certain circumstances, gradually became in some regions more or less dark; or, 2*dly*, that they were dark, and in some situations became more or less white. Of Dr Wood's examination of these two opinions, we are tempted to extract the more important parts.

"First, then, suppose the original pair to have been whites, whence have the dark colours resulted? The influence of the sun first suggests itself. The black races, unquestionably, are met with chiefly where the influence of the sun is greatest; and it must be conceded, that the heat and light of the sun, and a perpetually warm atmosphere, must exert a powerful stimulus on the skin, by which the general secretion, and hence that of the colouring matter, (which exists, as we have seen, even in whites) may be readily conceived to be much increased. But it is answered, that latitude does not certainly determine the colour of a nation or tribe. Some tribes almost at the line are much less dark than others remote from it; and the Esquimaux, living within the arctic circle, are scarcely of a lighter colour than the negroes. To which objection there is this reply: Latitude does not of itself determine temperature, as the elevation of the land, the vicinity of the sea, the nature of the soil, the state of cultivation, the course of the winds, and many other circumstances, exert a material influence on it, altogether independent of the altitude of the sun. And again, in respect to the Esquimaux and some other tribes, it does not appear a very improbable assumption, that when colour has once been acquired by a tribe, it is retained with obstinacy for ages after they have ceased to be exposed to the influences by which it was generated, so that the Esquimaux are the descendants of a race whose colour was acquired in the Torrid Zone. This may appear a possibility rather than a probability. Yet, whatever view we adopt of the origin of colour and the other varieties among men,—on the supposition that they are sprung from a single pair,—a similar concession must be made, or that very long periods of time are required to produce the changes, whatever may be their causes; and that equally long periods are necessary to obliterate them, even when the circumstance of the existence of a tribe are completely reversed. * * * The opinion which refers the blackness of the negro to the power of the sun, is of ancient date. It is taken notice of by Pliny; it is insisted on in modern times by Buffon, Smith, and Blumenbach. The two last named authors consider the blackness of the skin as a sort of perpetual jaundice kept up by the intertropical heat. There is, according to Blumenbach, a copious deposition of carbon in the mucous body, connected with the excited activity of the biliary system, always observable in warm climates."

Here Dr Wood endeavours to palliate, or do away with, the apparent absurdity of Blumenbach's notions, with considerable success, and suggests a modification of it in the following words.—

" Although Blumenbach's theory is not at once to be rejected on the false imputation of ascribing the colour of the negro to a perpetual disease, it cannot, in its present state, be said to be of a very probable nature; and yet it very possibly points to the real character of the difference of colour in the original inhabitants of tropical countries, namely, to a modification of the great excretory functions of the body, particularly of the respiration, the excretion of bile, and the action of the skin, produced by the influence of the heat and light of the sun, and of a warm atmosphere operating on native tribes for a course of ages; for it is not inconsistent with the laws of the animal kingdom to suppose, that such a modification, at first limited, should be accumulative through successive generations, until it reached a maximum; and that it should not be lost by the removal of a tribe to a temperate country, and by the use of clothes, unless where these circumstances shall have operated through as many generations as had been required under the opposite circumstances to produce the maximum effect. * * * On the hypothesis, then, that the original pair was white, the sum of the argument, as to the cause of the difference of colour, is, that the aboriginal inhabitants of tropical countries are black; that the dark tribes found in cold or temperate countries are probably sprung from them; and that the influence of the heat and light of the sun, and of a warm atmosphere, acting with accumulative effect on the skin of naked tribes for ages, must so alter its secretion and the original relations of all the excretory functions, that there is no difficulty in the supposition, that the colouring matter produced from it in all the healthy individuals of mankind, should become so copious in them, as to be capable of communicating the most perfect blackness. * * * Among the writers who have been led to the conclusion that black is the original colour of the human race, Dr Pritchard is pre-eminent. The great object of his work is to prove, by historical documents, that savage tribes have always been of dark colours, and that advancement of civilization has always been accompanied with a change to the lighter hues. The evidence adduced appears to bear him out in this statement. He exhibits, also, many points of analogy between domestication in the inferior animals, and civilization in man, and endeavours to show, that the effects of domestication are parallel to those of civilization, inasmuch as many animals of dark colours in the wild state, as horses, oxen, sheep, and poultry, acquire light colours in the domesticated state. As a change to civilization from the savage state includes the growth of many circumstances which cannot but alter the original or the previous relations of the functions of the body, this view corresponds in a great measure with what was stated above, in speaking of the origin of the several varieties from a white pair. Nor is it essential to this view of the subject that the original pair should be assumed as black. If certain causes are capable of so modifying the actions of the body as to convert the black colour of the skin to white, it is as easy, or almost as easy, to suppose the opposite causes adequate to the change of the white colour into black, or that the black colour of the negro is a deviation from the original model, produced by the degeneration from civilization to a savage state of life. It may, indeed, at first view appear less difficult of conception, that the thick and dark-coloured mucous body of the negro should become gradually thinner, under the influence of protection from the sun and weather, more regular habits of life, a better diet, and the other circumstances constituting civilization, until it passed at last into the slender colouring matter of the whites, than that this slender substance should, under the opposite circumstances, increase to such a thickness as it is found to possess in the negro. And further, we may feel more ready to believe, that the other differences, more particularly the developement of the brain and the expansion of the intellect, should be brought about gradually, in the transition of men from subjection to instincts, forward to the command of reason, than that, having possessed reason, they should suffer a diminution of the physical organ of intellect, and again fall under the control of instinct. Still there is one great obstacle in the way of this supposition. *If the negro were the original type of the human race, the parent of the most intellectual races known on the earth, whence has it happened that the negro inhabitants of Africa have stood still for so many thousand years, without any tendency to that advancement which has wrought such signal changes on their brethren of Europe?* Geographical position, and a few other causes of their mental inactivity, may indeed be suggested; yet these are far from satisfactory. So that, notwithstanding the somewhat more easy solution of the difficulty as to colour, on the supposition that the negro was the original model, I think it will be admitted, on a review of the entire case, that the whole circumstances corresponds better with the idea, that the negro is a degenerate caste of a more perfect original standard. Or the truth may in this case, as in so many others, lie between the two assumptions: the original pair may have been intermediate, as well in colour as in all other peculiarities, between the negro and the Circassian race, from which, on the one hand, the negro has degenerated, under the influence of barbarism, while, on the other, the Circassian has grown up to perfection, under the improving effects of civilization."—Pp. 94—102.

To the part printed in Italics, we shall briefly state one objection. The author seems in that sentence, as well as some others, to suppose, that the degenerate African negroes, with woolly hair, flat noses, &c. constitute the standard specimen of the black race. Now, we are inclined to think that the African negro is a degenerate species of a race of blacks, some tribes of which race are still to be met with in the neighbourhood of Soudan. It has been ascertained, at all events, by Browne and Hornemann, and more recently by the interesting researches of Clapperton, Denham, and Lyon, that Central Africa, especially above the cataracts, and towards the lake Tsaad, is inhabited by a race of blacks of good form and lineament, but which are referable neither to the Moorish, which is probably an Asiatic race, nor to the negro. From the figures and description given in the travels of Denham and Clapperton, these persons, under the different tribual distinctions of Tuaricks, Tibboos, Soudans, and Mandaras, appear to possess much of the figure of the race known as the ancient Koobd or Koptic, and which, in point of fact, is the Egyptian (Αιγυπτ—ιος). They present the same expanded forehead, and broad, well-marked, though by no means flattened, nose; their hair is jet black and uncrisped; the bones of the leg are straight as the Asio-European race; the *os calcis* has not attained the enormous developement which it exhibits in the negro; and all the muscles are full-bellied and rounded. We have, however, hitherto received no accurate account of the skeleton of this race of men.

This article has already been extended to such a length, that we are precluded from examining this subject more accurately. In the meantime, we agree with Dr Wood in thinking, that we have not yet advanced beyond the bounds of rational conjecture, and that at present it would be unphilosophical to fix any opinion. By the accumulation of facts, we may be at least enabled to discover under what circumstances change of colour, and other differences in the conformation of races occur; but whether we shall be able to ascertain the colour of our first parents, it would be rash to predict.

Of Dr Wood's account of the cuticle and nails, we shall only observe, that it is succinct and accurate, though it contains nothing new.

Into the second part of the work our limits will not permit us to enter. If it cannot boast of novelty, it has at least the merit of perspicuous arrangement and brevity, and will well repay the trouble of perusal.

The work, upon the whole, gives a favourable impression of Dr Wood's talents, learning, and industry. The style is agreeable; and we conceive that it is a book which will be perused with pleasure by the non-professional as well as the professional reader.

Regarding the second work, the title of which stands at the head of this article, a few lines will suffice for all we have to say. In the twenty-ninth volume of this Journal the original was reviewed, so that now we have merely to point out wherein the translation differs from it, and how it has been executed. Mr Dickinson has omitted two parts of the original, which, though useful, add so much to its bulk, that we conceive he has acted on the whole wisely,—the cases illustrative of the symptoms and treatment of the various affections described, and the index of terms used by the older writers.

The translation, so far as we can judge from a hasty perusal of it, appears to be, on the whole, correct, though here and there slight inaccuracies occur in translating particular idiomatic expressions. Little care has been taken in correcting the press, for the book abounds in typographical errors; and neither the type nor the paper does credit to the publisher.

ART. VI.—*Outlines of the Course of Lectures on Military Surgery, delivered in the University of Edinburgh.* By Sir GEORGE BALLINGALL, M. D. F. R. S. E., Regius Professor of Military Surgery, &c. &c. &c. 1832. 8vo. Pp. 589.

LARGE bodies of men engaged in warlike operations, whether by sea or by land, are not only liable to the usual and necessary injuries and accidents resulting from the use of the various weapons of attack and annoyance, in the shape of bruises, fractures, and wounds of different kinds, but are farther subject to all those diseases produced by atmospherical vicissitudes, meteorological agency, and local peculiarities of surface, or engendered by the concentrated emanations of numerous densely compacted human beings. To cure or alleviate the evils of the former description, forms the duty of the surgeon; and it becomes the proper business of the physician to investigate the operation of the causes producing the second class of evils, and to devise the best means of counteracting their influence and obviating their effects. As a few causes, however, are applied to many individuals at once, the effects, though diversified, necessarily bear a very general resemblance; and hence it is chiefly certain classes of diseases, and certain sorts of injuries, that claim the especial attention of the military physician and surgeon.

This application of the principles of medicine and surgery to the maintenance of the efficiency of large bodies of men in fleets and armies during warlike operations, has not at all periods of history obtained from those invested with authority that degree of attention to which it is entitled. Even the most warlike nations in Europe did not, till a very recent date, make any regular provision for superintending the health, and treating the wounds and injuries of their troops; and soldiers and sailors were too often allowed to endure all the necessary and contingent hardships of warfare, with very scanty and rude means of healing the wounds which necessarily resulted from their conflicts, few adequate means of resisting the approach of disease, and almost none of removing it when present.

This mode of arrangement was connected with the character of warlike operations during the early history of modern Europe, in which a campaign consisted of a few weeks' duration, and after some violent and sanguinary struggle, the victorious and conquered party generally retired for the rest of the season to their respective homes. Thus, in the long and sanguinary conflicts waged during the fourteenth and fifteenth centuries between England and France, the business of a campaign consisted in a single, or at most two, great and extraordinary efforts between the contending powers. This celerity and dispatch in military operations was required, not only by the slenderness and instability of the pecuniary means by which armaments were fitted out and maintained in a foreign country, but also by the chance of sickliness appearing and thinning their numbers to an incredible degree.

We know from Rapin and various credible authorities, that if the battle of Azincour, which was fought on the 23d October 1415, had been postponed a single week, the number of the English troops must have been so much diminished by sickliness and mortality, that, instead of conquering the French, their army must have fallen an easy prey to the predatory attacks of the Norman peasantry. Though Henry V. had embarked from Southampton on the 18th and 19th August with 50,000 men, it is said, and landed at Havre de Grace on the 21st, before five weeks had elapsed, dysentery had attacked them severely and extensively, and was committing such havoc, that 2000 are reported to have died of it in a single day, and not above a fourth part of the whole force were capable of bearing arms. Nor were its attacks confined to the private soldiers. It had already proved fatal to the Bishop of Norwich and the Earl of Suffolk; and the Duke of Clarence, brother of his Majesty, the Earl of Arundel, and several officers of rank, were so seriously ill that they were obliged to return to England. In this dreadful and comprehensive epidemic calamity, no provision appears to have been made, either for maintaining the health of the troops, or restoring it when impaired.

A very similar state of matters was observed during the sanguinary and remorseless civil wars which continued to desolate France for eighty years, during the contests of the Burgundian and Bourbon factions, and previous to the accession of Henry IV. Though in these days the princes had physicians and surgeons who accompanied them to the field, no medical officers appear to have been assigned to the different bodies of troops, nor does any provision appear to have been made for preserving the health, and curing the diseases or injuries of the common soldiers.

Yet the treatment of wounds and injuries received in battle, began before this time to attract the attention of surgeons; and we find that Italy, which had been the first country to cultivate anatomy and medicine, was also distinguished for producing the first military surgeons. Roger and Rolando of Parma, Bruno of Padua, William of Placentia, and his pupil Lanfranc, wrote treatises of this kind, suited to the warlike weapons of the 13th century. A much more complete work was published in the beginning of the 16th century (1516,) by John de Vigo, a native of Genoa, distinguished as the first practitioner who cured the venereal disease by the exhibition of mercury.

The invention of gunpowder, however, appears to have been the first circumstance that led to the composition of express treatises on military surgery; and Alphonso Ferri, a native of Naples, and Professor of Surgery in that city, published in 1531 a treatise on gun-shot wounds, which still presents much interest to the surgical reader. Alphonso is known to have contrived a species of ball-forceps for extracting bullets, which has long been known under the name of Alphonsine, which was to supersede the necessity of dilatation,—a hope at the least very delusive. Alphonso Ferri defends the doctrine of the poisoned character of gun-shot wounds, originally introduced by De Vigo, and regards the accidents from the wound of a ball as a decisive proof of this property. But he was aware of their contusing effect, and recommends means to counteract its consequences.

Bartholomew Maggi of Bologna, invited to Rome as physician to Julius III. is commonly supposed to have been posterior to Ferri. But, whatever was the date of his birth, he died in 1552; and he had published the same year a treatise on gunshot wounds, in which he refuted most triumphantly the vulgar, and then fixed error, of the poisonous nature of these injuries; and, denying equally the poisonous nature of gunpowder, and the burning property of the balls, introduced a method of treatment more suited to the nature of the injury than that recommended by Vigo and Ferri. We regret to remark, that Sir George Ballingall, in copying the Bibliographical List of Millingen's Manual, has repeated the error of that author, in converting the Latinised name of the Italian professor from *Maggius* into the plebeian Maggins.

The doctrines of Maggi found an able defender in Giam Baptista Carcano Leone of Milan, professor of surgery at Pavia, whose memory has been lately rescued from oblivion by Scarpa.

Much about the same time, Leonard Botalli, a native of Asti in Piedmont, published some observations on the nature and treatment of gun-shot wounds, in which, though his remarks are very similar to those of Ferri, he differs from that author in denying the poisonous character of these injuries.

It is not improbable, that the Roman surgeon mentioned by Paré as very successful in his treatment, and with whom he ingratiated himself so much, as to obtain from him the knowledge of the composition of the unguent of dead whelps and earthworms, which was certainly a much less injurious and painful application than corrosive sublimate or boiling oil,—was a pupil of Maggi or Botalli. This, however, Paré afterwards, on more mature experience, discarded.

Two circumstances contributed to direct the attention of the Italian surgeons to this subject. The first was the actual superiority of that nation in literature, and anatomical and medical knowledge generally; and the second was the fact, that Italy was then the theatre of incessant warfare, either by one state contending with another, or by being the field to which most of the European powers resorted, in order to decide their differences by the sword. The mortality then caused by gun-shot wounds appears to have been very great, chiefly in consequence of the absurdly cruel method of pouring into them boiling oil and other violent caustics; and, as many persons of rank necessarily fell victims either to the wounds, or the treatment, or both, the interest of the higher, and more wealthy and powerful ranks, was forcibly directed to the means of counteracting the effects of injuries so alarming.

At this conjuncture appeared Ambrose Paré, a man who united to all the knowledge of his time, a singular degree of originality and talent, which enabled him to deviate widely from the line of his predecessors and contemporaries, and discarding many of the foolish, superstitious, and cruel practices then in use, thereby to simplify and improve greatly the treatment of wounds. The circumstance of his being originally attached to the army in one of the most warlike periods of the history of France, and of his being personal surgeon to four, if not five, successive French sovereigns, (he survived Charles IX. at least eighteen years,*) gave him a field of practical experience in military surgery which none of the Italian surgeons had yet enjoyed, and which, perhaps, has scarcely since that time fallen to the lot of any individual. Paré, though he acknowledges that he derived many useful lessons from the Italian surgeons, improved much on their pathological and therapeutical doctrines, and may be regarded as the author who most completely overthrew the theory of poison from gun-shot wounds.

The reputation of this eminent military surgeon cannot be better demonstrated than by the implicit confidence and courage inspired into the French soldiers when besieged in Mentz, as related in the work of Sir George Ballingall.

" It was actions like this which brought Paré into so much repute among the French soldiery, that we find their princes and generals willingly took the field when they could prevail upon Paré to go out along with them; and at the time when all the nobles in the kingdom were shut up in Mentz, which was beseiged by Charles V. in person, at the head of a hundred thousand men, they sent an embassy to the king their master, beseeching him to send Paré to them. An Italian captain, for a great reward, introduced him into the city; they instantly sent at midnight to awake the prince, who commanded the garrison, with the good news of his arrival. The governor begged that he would go next day and show himself on the breach. He was received by the soldiers with shouts of triumph. We shall not die, even though wounded—Paré is amongst us! Mentz was at this time the bulwark of France; and it has always been ascribed to the presence of this single man, that they kept the city till the gallant army which lay around it perished beneath its walls."—P. 11.

While Paré was refuting this erroneous opinion, and removing all the mistaken modes of treatment which resulted from it, in France, Thomas Gale of London, Master in Surgery, who had been educated under Richard Ferris, sergeant-surgeon to Queen Elizabeth, and in England, France, Holland, and other places,† acquired experience in the wars, showed the surgeons of England the groundlessness of this opinion, and recommended a method of treatment similar to that of Maggi and Paré. [1563–1586.] This *Excellent Treatise*, indeed, is written, he tells us, for the purpose of "confuting the gross errors of Hierome Brunswicke, John Vigo, Alfonce Ferrius, and others, in which they make the wound venomous that cometh through the common powder and shot;" and also "setting forth a perfect or true method of curing these wounds."

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* Charles died in 1574, two years after St Bartholomew's massacre;—Paré in 1592, according to Devaux.

† An Institution of a Chirurgeon, p. 8.

The different surgical writings of Gale, composed as they were in English, must have been of great use in diffusing the knowledge there collected. It is certain, at least, that the cultivation of military surgery was now beginning to attract attention, and was more exclusively studied by English than by foreign surgeons; for we find the work of Thomas Gale was soon succeeded by those of William Clowes, one of her majesty's surgeons, originally a navy surgeon, and afterwards surgeon to St Bartholomew's and Christ's Hospital; Peter Lowe of Glasgow, doctor of the faculty of surgery at Paris, and ordinary surgeon to the French King and Navarre; John Woodall, a military surgeon in the reigns of Elizabeth, James I. and Charles I.; Richard Wiseman, sergeant-surgeon to Charles II.; and John Brown, surgeon in ordinary to the same monarch. Of the peculiar merits of the writings of these different authors, Sir George Ballingall has given short but accurate sketches, which will be perused with much advantage by the surgical student. It is sufficient for us to say in general, that to the skill and experience of these early military surgeons, and to their diligence in recording the results of their observation, the profession owes a large debt of gratitude, not only for first giving shape, substance, and method, to the first rude principles of military surgery, but for many valuable improvements in surgical pathology, and therapéutics generally. It is too much the custom to apply to the writings of these diligent persons, the language of contempt, to underrate their services, and to represent their practice as rude, irrational, and absurd. While it is impossible to deny that much of their pathology betrays ignorance of anatomy, and little acquaintance with the natural course of morbid action, it should be remembered that these were the faults not of the individuals, but of the age in which they lived, and that even amidst these errors we often find most valuable information, and remarks which demonstrate the sound sense and original judgment of their authors. Even the very errors of these ancient surgeons were useful, and illustrate, in the clearest manner, the principle, that it is often impossible to attain to truth, until after the experience of many mistakes.

But while Military Surgery was thus early and rapidly acquiring a tangible and instructive shape, its sister branch, Military

Medicine, was either entirely neglected, or in such a state of disorder, as to be totally inefficient and unavailing. The first country in Europe, in which medical knowledge began to be applied methodically, in this manner, was Austria. Placed with Hungary and the adjacent territories, at the eastern boundary of Europe, and forming as it were a natural barrier against the incursions of the Moslemin, the Austrian Empire was almost incessantly at war with the Turkish; and, while the Emperors felt it indispensable to maintain a line of troops in fortified towns more or less strong, on the eastern frontiers of Hungary, and in Moldavia and Wollachia, numerous reinforcements were from time to time despatched to these places in order to repel hostile incursions, or obtain some conquest over the infidels.

Hungary, however, is the most unhealthy country in Europe. Watered along its southern frontier by the slowly rolling Danube, and traversed by a thousand streams which pour their tributary offering into this father of European rivers, the surface of Hungary is extremely moist; and during the summer season, when the solar heat becomes intense, between the superficial desiccation and evaporation during the day, and the dense dews and fogs during the night, all the miasmatic diseases prevail with a force and virulence, and rapidity of progress, perfectly unknown in other parts of Europe.

The diseases endemial to the country, are bad agues, with local determination, remittent fever, with dreadful and oppressive congestion of the brain, commonly called the Hungarian sickness, or *dead-fever*, dysentery, and diarrhœa, cholera, scurvy, and a peculiar enlargement in the left hypochondriac region.

The agues and remittents of Hungary, which have been described by Jordan, Ruland, May, Cober, Baty, and others, have been long known to be the most fatal diseases to which the Austrian armies, in their Hungarian campaigns, were liable. Distinguished by the most oppressive headach and sickness, with epigastric pain and vomiting, and terminating often fatally, by apoplectic death, in from four or five to seven days, they bore a nearer resemblance to tropical remittent than any other European disease, in the extreme and irresistible fatality with which they were attended; and like that disease, the comprehensiveness of their attacks made them be regarded as contagious by Jordan, Ruland, and some of the early authorities.

As this disease, like remittent fever in every climate, was always observed to attack strangers more severely and more numerously than natives, the period at which it appears first to have made an extraordinary impression, was in the year 1566, or, according to Thomas Jordan, the principal authority, in 1572, when the Emperor Maximilian II., in an expedition against Solyman, led a numerous force to the banks of the Danube. With the view of taking the towns of Wesprim and Tata, the army had encamped on Comorrha, a low humid island in the river; and between scanty provisions and unusual inundations, which kept much of the surface long under water, the troops very quickly sickened, and the majority were destroyed in a few weeks.

From the testimony of Thomas Jordan of Coloswar, in Transylvania, at that time chief surgeon to the imperial army, and to whom we are indebted for a good description of this fatal epidemic, it may be further inferred, that two separate diseases at that time prevailed in the imperial army; the one the *Hagymax* or head-ill, the virulent remittent of Hungary, with cerebro-meningeal congestion; the other, the ordinary continued fever of camps (*typhus castrorum*,) engendered probably by numerous human beings being compacted in a very small compass, in a situation otherwise insalubrious.* It is, at all events, stated that the disease was accompanied in many with the same petechial eruption and continuous course of symptoms, which appeared in the petechial fevers of Italy, and was a considerable source of mortality; and it is added, that many of the soldiers being allowed leave of absence, conveyed the disease into Austria, where it spread among the inhabitants. This, we know, does not apply to remittent, the endemial product of the Hungarian soil, and we must therefore infer, that the disease was the *Synochus* or *Typhus castrorum*.

A disease which has been often confounded with this, but which is represented by several authors, and especially John Baty, a native of Hungary, to be entirely distinct, is the *Tsomoer* or *Csömör*, a species of cachectic languor and feebleness, accompanied with great loss of appetite, weight in the limbs, hard tubercular swellings beneath the integuments, and terminating in diarrhœa. It was ascribed to the excessive use of fat meat, bacon, and pork, and seems to have been a species of land-scurvy. †

From the period now mentioned, the frequent occurrence of sickliness and mortality in the Austrian troops stationed in Hungary, either in garrison or encampment, rendered it indispensible for the imperial government to provide a suitable medical staff; and also for the medical officers thus appointed, to devote particular attention to the diseases incident to the military life.

It is from this circumstance that we find, that the first authors, who devoted express treatises to the subject of Military Medi-
are, with few exceptions, either Austrian physicians, or

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tis phenomena, Francof. 1576.

e Morbis Hungaris Endemiis, &c. A Joanne Baty, Met. ad Rhen. 1775.

physicians attached to the Austrian service. We have seen that this is true of Jordan, already mentioned; and the character is equally applicable to Conradin, Ruland, Sennert, Burggrave, Cober, May, Alberti, Teichmeyer, Benkotzi, and many others, who composed monographies, more or less complete, on particular diseases prevalent among the soldiers in Austria, among whom they acquired their knowledge. It is in general not less true of many authors who, at the close of the seventeenth, or beginning of the eighteenth century, wrote more general treatises on the diseases incident to the military life, for instance Schmit, (1664,) Almacher, (1672,) Melchior, (1675,) A. Gehema, author of two essays, (1684, 1699,) Ludovici, (1702,) Gottsched, (1703,) Stahl, (1711 and 1735,) Storch, (1734,) and others too numerous to recount.

The performances now mentioned were mostly inaugural dissertations, or similar essays, and could be regarded as ephemeral publications only. Nor perhaps can a better character be given to a work of J. B. Mella, published at Naples in 1591.* The first person who appears to have undertaken to compose any thing like a complete system of Military Medicine, was Raymund Minderer, a physician of Augsburg, in the beginning of the seventeenth century, who is reported to have been the first that was in the habit of administering the neutral salt, composed of vinegar and hartshorn, still occasionally denominated by his name. Minderer, who appears to have spent the early part of his life in the army, was evidently led to publish this short manual, which appeared first in German in 1620, in consequence of the frequent wars in which his countrymen were engaged. It consists of ten chapters, the three first of which are devoted to the preliminary subject of the requisites of a good soldier, the maintenance of health by exercise and moral management, and the general method of treating diseases of soldiers. In the fourth, it presents a short view of the usual camp fevers, embracing the Hungarian sickness, plague, and malignant fevers generally; the fifth is devoted to *angina;* the sixth to gastric fever; the seventh to diarrhœa, dysentery, and intestinal fluxes generally; the eighth to buboes, carbuncles, and bad ulcers; the ninth to surgical operations; and the tenth to miscellaneous subjects. It appears to have been much esteemed; for it was published in English, at London, in 1634, and it passed through five German editions, and one Latin one.†

The success of the work of Minderer, induced John Valentine Wille, camp-physician to his Majesty Christian V. of Denmark, to publish at Copenhagen, in 1676, for the use of that government, a small treatise on the Diseases prevalent in Camps, —which is dedicated to the sovereign himself. This treatise consists of eight chapters, in which the author considers the following subjects;—health and disease, in general, and their causes; the diseases of camps in general, their causes, peculiarities, and symptoms; the particular diseases of camps, as plague, malignant fever, scurvy, syphilis, catarrhal disorders, disorders of the stomach, and intestinal discharges; the general mode of preserving soldiers from the diseases incident to encampments, by attention to discipline, air, food, exercise, or duty, and mounting guard; the excretions and the mental emotions; the prophylactic means adapted to particular diseases; the therapeutic means required by the diseases of camps in general; the therapeutic means required for particular diseases of camps; and, lastly, the method of managing symptoms.

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* J. B. Mella il Cortesino overo del Mal de Castron, &c. Napoli, 1591.

† R. Mindereri Medecina Militaris sive liber castrensis, &c. Aug. Vind. 1621—1679.

This treatise is a very decided improvement on that of Minderer, and it displays a spirit of precision and accuracy, mixed with good observation and sound judgment, rather unusual in the works published at that time. It is, nevertheless, formed on the basis of that of Minderer, as the author himself avows. His description of the requisites of an able camp-physician, shows that he must have formed a very high idea of the character of that functionary. He had also a just understanding of camp diseases, strictly so called, specifying them to be those which, either springing from common causes, attack great numbers of men at once, or being introduced by individuals, spread rapidly through masses of troops. This work was republished at Leyden in 1741 along with that to be next mentioned.

The treatise of Wille, however, was devoted only to one department of military medicine, and, though formed on the model of a German one, was peculiarly adapted by its author for the exigencies of the country of which he was a native. The next one, which was much more complete and comprehensive, illustrates forcibly the observations made as to the influence of the Austrian empire in bringing Military Medicine into fashion.

Luca-Antonio Porzio, a native of Naples, and chief professor of medicine and anatomy in the Royal University of Naples, was induced, in consequence of great sickliness at Vienna in 1684, to perform a sort of medical tour from Venice, by Vicenza, Verona, Trent, Inspruck, Moenichen and Linz, to the capital of the Austrian empire. Here he had an opportunity, not only of seeing the domestic sickliness of Vienna, but the soldiers who had returned thither in bad health, from the encampments at Buda and at Gran, where a large force had been assembled. The principal diseases under which they laboured, he tells us, were dysenteries and diarrhœas; tertian and quartan agues, and other fevers of uncertain type and period—evidently continuous remittents, the relics of the Pannonian sickness; visceral enlargements, and swellings of the abdomen, with œdematous swellings of the feet; coughs, with much difficulty of breathing,—with almost invariably foully-furred, and dark-crusted tongue. Dysentery and diarrhœa were so general and fatal, that they had caused more mortality than the Turkish sword to the imperial army. From numerous inquiries at different individuals, regarding the supposed causes of these disorders, Porzio came to the conclusion, that these persons and the Austrian officers generally, were completely ignorant of the true reasons of their illness, which was ascribed to accident and chance, and of the mode of preserving health in a climate such as that of Hungary. These considerations determined the Professor to write a short treatise, illustrating the causes of the diseases of soldiers, and explaining the best method of guarding against them, and of curing them. He accordingly published at Vienna, in 1685, a treatise *de Militis in Castris Sanitate tuenda*, in which all the facts stated, and principles taught, were derived from the experience of physicians in the Hungarian campaigns.

It is manifest, both from the preface and from the whole tenor of this work, that Porzio agreed with many physicians in looking to Hungary as the great field of observation and experience for the army medical officers. In the preface especially, in which he takes a general survey of the causes most productive of disease in Germany generally, and in Hungary in particular, and after adverting to the foul feeding of the Austrians as a most prolific cause of illness with them, when contrasted with the more delicate mode of living of his countrymen, he takes a comparative view of the physical circumstances of the two countries. The cold and moisture of Germany are more likely to produce inflammatory disorders, he remarks, than the milder climate of Italy; and to counteract this, the Germans clothe warmly, while the Italians, very thinly dressed, are liable in certain seasons to epidemics of pleurisy and peripneumony, as happened in 1683. The gross feeding, also, of the Germans, and the frequent drinking, are less injurious in a climate so cold as Germany; but they predispose in the summer to very violent gastric fevers, dysenteries, and other complaints of the alimentary canal.

He then adverts to the different characters of the hydraulic system of the Danube and Adige, in order to explain the influence of the banks of these rivers on the health of the inhabitants. Thus, though the Inn and Adige spring from the same mountain almost, yet, while the latter falls by a short and precipitate course into the Adriatic, the former descends more slowly into the Danube, which then finds its way by a slow and lengthened route of several hundred miles,—sixteen degrees he remarks,—into the Black Sea. As the latter circumstances indicate a level country, he does not scruple to attribute the difference in salubrity, in a great degree, to this cause.

Porzio was a man possessed of all the learning and science of his day; and though his views, in some respects, appear trite and sometimes erroneous, his work is evidently the production of a mind of much activity, and great accuracy of observation.

The work of Porzio consists of four parts or general divisions; the first, on the causes of diseases of camps, and particularly on those of the diseases in Hungary, and on the result of their operation; the second, on various articles of food and drink easily prepared, which may be used by soldiers in encampments; the third, on the means of preserving the health of soldiers from those disorders which operate by the medium of the atmosphere; and the fourth, on the means of protecting the health of soldiers from certain peculiar diseases most frequent in encampments.

In the three first parts of the work, the author considers minutely the general causes of health and sickliness among bodies of men, takes some very just views of the morbific operation of physical agents, and other external causes, as terrestrial emanations, &c. and the effluvia of putrid animal matters, and shows the necessity of preventing their operation by suitable precautions. The last part, which is more particular, is devoted to the consideration of the means of preserving troops from attacks of dysentery, diarrhœa, petecchial fever, quartan ague, tertian ague, and jaundice,—the means of preserving the appetite, and maintaining digestion unimpaired,—the means of guarding against abdominal swellings and obstructions, cough, pain of the head, and articular pains,—and, lastly, on the indications of disorder afforded by the mouth and tongue.

This treatise was so much prized that it has been reprinted several times, with emendations and editions,—with his works in 1736; and lastly, was republished in 1741 at Leyden, along with that of Wille. Three years after, a French translation was published at Paris.

The work of the Neapolitan professor, being the first very complete treatise, formed a sort of basis to all future productions of the same character; and most of the dissertations printed afterwards, either followed his arrangement more or less closely, or reproduced his materials. This is applicable to most of the dissertations by A. Gehema, Stahl, Hoffman, and others, all of which were published subsequent to the appearance of the first edition of Porzio. The path, in short, had been opened, and the route was already sketched, so that succeeding authors had little to do but to follow and collect new facts to be arranged under the proper heads.

Besides many minor publications, three deserve more especial notice; the first by John G. Henry Kramer, chief imperial physician on the Rhine, published in 1735 at Vienna and Nurnberg; the second by M. de Meyserey, physician to the King of France at Paris in 1754, in three volumes, 12mo; and the third by Gerard Van Swieten, physician to the Queen of Hungary, published in German in 1758, at Vienna, Prague, and Triest, and in Latin the same year; in French at Vienna in 1759; and at Paris in 1760.

The method of observing and recording, had now, however, taken a different turn; and the valuable observations collected by four physicians of the English army, began to supersede entirely the compilations of the foreign authors. The work of Cleghorn on the diseases of Minorca, that of Pringle on the diseases of the army in the low countries in 1752, followed as they were by that of Francis Home in 1759, and the account of the diseases prevalent in military hospitals, by Donald Monro in 1764, and that by Brocklesby in 1768, threw so much new light on the causes and treatment of the diseases incident to warlike operations, that not only was the whole science of medicine very much improved, but its application to the exigencies of the military life began to acquire more importance, and create more general interest in this country than heretofore. The analogous treatise of Hautesierck, on the military hospitals of France, is also entitled to mention in this place on the same ground.

The observations of these physicians henceforth rendered obsolete or uninteresting most of the continental treatises; and those who, like Baldinger and others, undertook to cultivate the knowledge of this department, found it indispensable to modify all their previous ideas by referring to the observations and experience of the English physicians. Similar improvements and extensions followed, by the attention given to the general causes of sickliness and mortality, by several English army or navy physicians in the colonies, as Dr Hume, James Lind, and Dr John Hunter; and more recently by Dr Blane, Dr Jackson, Lempriere, Leonard Gillespie, and Rollo. To enumerate all these, however, would far exceed our limits, and would form a catalogue almost of writers on many important acute diseases.

The information, however, scattered through so many different volumes, the experience derived from so many sources by different individuals, might be highly useful to those who had time to trace its diverging ramifications, and who had sufficient perseverance to collect and methodize the necessary principles for actual application, but must have been to all others extremely inaccessible, if not unprofitable. The task of once more digesting into one portable code all those materials, was from time to time undertaken by different individuals with various degrees of success; by Fr. Bruno Fernandez in Spain, 1785; Das Neves, 1797, in Portugal; Schaarschmidt, 1795; Ackermann, 1794–97, 1800, Rosenmeyer, 1805, Augustine, 1807, and Hecker (1808–1817), in Prussia; Kirchhoff, 1814, in Flanders; Busch, 1815, Eneholm, 1818, and Hempel, 1823, in Saxony; Isfordink in Austria; Cantarutti and Omodei in Italy; Hamilton, Jackson, and more recently Luscombe and Millingen, in England; and Lachese, Pergot, and Revolat, in France.

The merits of these treatises are very various, some being distinguished for one kind of excellence, others for different qualities. In general, the treatises of the Austrian and German physicians are the most elaborate and complete; and those of Hecker, and the more recent one of Isfordink, may be referred to as the most exactly suited to the exigencies and discipline of modern warfare. Of the work of Omodei, the learned editor of the *Annali Universali di Medicina*, one volume only is published; and the specimen there given of extensive information, delivered with clearness and precision, makes us regret that the work is not completed.*

The chief objection to the continental works is, that they are too exclusively directed to the subject of mere military medicine and surgery, and neglect proportionally the application of medico-chirurgical knowledge to the management of the health of seamen, and the maintenance of the efficiency of fleets and squadrons,—a matter of no ordinary importance to a maritime and commercial power. It is on this account that the writings of Lind, Lempriere, Leonard Gillespie, Rollo, Blane, and Trotter, possess still a degree of value much superior to any of the productions of the continent.

The Surgical department, or Military Surgery, strictly so named, had also, it may now be observed, within the latter half of the eighteenth, and the beginning of the nineteenth century, been very much improved. By the experience of Bilguer and Schmucker, and more recently Mursinna and Langenbeck in Germany, Boyer, Roux, Larrey, and many others in France, Assalini in Italy, and many surgeons in England, whose writings have at different periods been reviewed in this Journal, old methods of treatment have been simplified and rendered more efficient, new ones have been introduced, the powers and capabilities of surgery have been augmented, and the boundaries of the science ad-

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* Militare de Annibale Omodei, Vol. i. 1807.

It is, nevertheless, remarkable, that though, by the activity, the diligence, and the research of these able observers in different regions of the globe, much valuable information was collected on the subject of military medicine; and by the diligence and originality of John Hunter, John Bell, and various other surgeons, military or naval, Surgery was both improved and simplified in our armies and navies,—it appears to have been thought unnecessary to give it the advantage of public patronage by attaching to it any mark of recognition by government. In no country of Europe was any provision made for training medical officers for the service of the army and navy, and initiating them in the detailed and practical knowledge of those subjects which most imperiously demand attention in the public service. The necessity, however, of some especial arrangement of this description, appears to have been impressed on the minds of different surgeons at different times.

The idea of a School of Military Surgery appears to have occurred with great force to the original mind of the late Mr John Bell of this city. Zealously devoted for a whole lifetime to the study of surgery, and especially to the operative department, that gentleman, with his characteristic enthusiasm and desire for improvement, repaired to Yarmouth in the autumn of 1797, to witness, in the naval hospital there, the treatment of the wounded seamen after the battle of Camperdown. It is probable that Mr Bell saw much adventitious, as well as necessary suffering in these men, for he expresses himself as if he saw great room for improvement in the education of the persons intrusted with the care of the wounded. The general result of this visit was the conviction in the mind of Mr Bell, of the necessity for the establishment of a general school of military surgery, in which officers destined for the public service in the army or navy might be taught all those principles and rules which might afterwards enable them to perform their duties in a manner satisfactory to themselves and useful to their country. He therefore addressed to Earl Spencer, then first lord of the admiralty, a memoir, dated from Yarmouth, January 1798, in which he explains the reasons requiring the institution of *one great school of Military Surgery*, shows how beneficial it might be expected to be, and explains the duties which he conceives belong to the professor of the school of military surgery. This part of his memoir, though very short, shows so much knowledge of the subject, and so just a conception of the object and subjects of Military Surgery, that we conceive the reader may peruse it with interest.

"'1. The Professor,' says Mr Bell, 'must teach with perfect care the essentials of anatomy; the great principles of surgery he must found upon dissections; and all the great operations, all the accidents which each part of the body is liable to, all kinds of wounds must be fully explained.

" ' 2. These general principles of the science must next be applied to the peculiar duties of the military surgeon; the professor must teach carefully the peculiar nature of gun-shot wounds.

" ' 3. He must deliver a short code of military medicine, explaining the fevers, fluxes, spasms, infectious diseases, and all the peculiar duties of the camp and the hospital; he must also explain the scurvy, ulcers, and all the disorders most frequent in ships of war.

" ' 4. He must teach medical geography; the climates; seasons; coasts of various countries; the manner of conducting soldiers on a foreign expedition; the general care of their health; the choice of encampments; the forming of hospitals on shore; how to convert churches, garrisons, public buildings, into occasional hospitals; how to attend an army in the field; how to lay the wounded in besieged towns; how to carry them off the field in a retreating army.

" ' 5. Along with these must be taught military economics, diet, exercise, clothing, general medicine, and all methods of preventing disease. Without this knowledge, no man is entitled to serve. How few are thus taught? How few are fit for service? How few are there who are not conscious of those blurs and blots in their general education, which no diligence of their own can ever do away?

" ' 6. The last and not the least important duty of the teacher should be to point out for his pupils a future plan of study; to make for them a selection of books; to deliver critical and practical observations on those which are to be most used. The teacher must not only instruct his pupils for the present, he must select objects for their future study. He must teach them this truth, that their education is only begun, and that the best of their studies remain as yet untouched; he must show them how to think for themselves and then he may hope to reap in his turn the fruit of their labours, and live to see their observations and cases published under his own care."—Pp. 27, 28.

From this short extract, it is manifest that Mr Bell, like all those who have meditated much and correctly on this subject, regarded the knowledge required by the medical officers of the army and navy as not merely chirurgical, but the application of medical and chirurgical knowledge to the management of the health of soldiers and seamen, in whatever situation the exigencies of warfare might place them, and including in the former all those facts illustrative of the etiology of diseases, of the salubrity or insalubrity of climates, countries, districts, and stations, which might enable them to guard against the approaches of disease, or control and mitigate its influence when present.

Of the result of Mr Bell's suggestions to government we are not informed; and several years of naval and military warlike operations, with the single exception of the short-lived peace of Amiens, elapsed, with the usual proportion of sickliness and mortality, bloodshed and slaughter, without any other step being taken to qualify the surgeons of the army and navy for their specific duties than what was afforded to the civil practitioner. Of these even, it may be remarked, from the limited qualifications then prescribed, with the great number of medical officers required, the supply was rather stinted and penurious.

At length, in the year 1806, when Lord Grenville was in office, it was deemed expedient to institute a professorship of Military Surgery in the University of Edinburgh; and after some opposition before, by the adherents of Mr Pitt, and some criticism afterwards, this was carried into effect; and Dr John Thomson, who had been recently selected by the College of Surgeons as their professor of surgery, was appointed also professor of military surgery in the University.

The surgical lectures of Dr Thomson were replete with instruction, historical, pathological, and therapeutic, and distinguished by just critical remark, and certainly contained much valuable information on military surgery. It must also be observed, that Dr Thomson, while he was the first teacher in this country who raised surgery, as a distinct branch of medical education, to the rank to which it was justly entitled, lost no opportunity of adding to the general stock of knowledge the valuable facts and illustrations, which, for a period of eight years, the most busy and active of our military operations on the continent, the surgeons of the army were constantly acquiring by their experience. After the battle of Waterloo, also, this indefatigable cultivator of the art made a visit to the recent seat of war, and availed himself of the opportunities afforded by the hospitals of Brussels, of witnessing the different kinds of injuries and wounds inflicted in the three days' struggle, and the treatment applied to each under the medical officers. By the additional experience acquired in this manner, the first professor of military surgery certainly contributed to impress much more correct ideas than had been heretofore entertained, on the peculiar nature and appropriate treatment of gun-shot wounds, sword-thrusts, sabre-cuts, and injuries by the lance and bayonet.

One defect, however, still remained. This gentleman never established any distinction between the course of military surgery proper, and his ordinary surgical course, farther than occasionally to lecture on the subjects most important to the military surgeon on separate days. The effect of this must have been, that several points, perhaps not a few, of professional information necessary to the accomplished medical officer must have been omitted, or treated in a very cursory manner; and, in point of fact, we believe Dr Thomson never pretended to lecture on Military Medicine, in the comprehensive sense of that term. One of the greatest objections to this mode of treating the subject, was the circumstance, that those who were disposed to underrate this branch of medico-chirurgical knowledge, might easily make it the pretext for asserting that Military Surgery did not differ from Surgery generally, and that express instructions on the subject were totally superfluous. At this period, however, it must be remembered, that as none of the public Boards invested with the superintendence of medical education required separate courses of military surgery, it could hardly be expected that Dr Thomson should undertake to deliver a distinct course, which must have been attended chiefly through curiosity, or by those who were desirous merely to see how the subject was treated.

On the resignation of Dr Thomson in the year 1822, the professorship of military surgery was conferred on the author of the present volume, who forthwith proceeded, in the winter of 1823–24, to deliver a course of lectures, which in this manner became the first separate and systematic course of instructions delivered in this, or, indeed, in any other country, on the qualifications and duties of the accomplished military surgeon. Dr Ballingall had at first to contend with great difficulties, in consequence of a very general impression, that lectures on Military Surgery were superfluous, if not useless; that all the necessary information was communicated by the teachers of Surgery generally; and that, even if instructions of this kind were requisite in time of war, the existence and prospect of a long period of peace held out little inducement to spend, in the acquisition of details which might never be requisite, time and money, which was urgently required for other professional studies.

These considerations contributed to keep the chair long in the back ground; and to a teacher of less perseverance and assiduity, might have formed insurmountable impediments. By persevering, however, in delivering annual courses of lectures,—by showing his capacity for the task by collecting, digesting, and publishing, whatever information was pertinent to the duty of the medical officer,—and, above all, by making the course one not of Military Surgery, but Military Medicine and Surgery, in the most comprehensive sense of the term, Sir George Ballingall has succeeded in obtaining for this department of professional study, a degree of consideration which it probably never would have acquired by any other mode. In 1829, a favourable change of public opinion was evinced by the Royal College of

Surgeons of Edinburgh, who had already prescribed two courses of surgery, allowing students to attend lectures on military surgery in place of one of these; and last season, the heads of the medical department of the Army and Navy signified their desire, that the course of Military Surgery in the University of Edinburgh should be allowed to stand for six of the twelve months' study of Surgery prescribed to candidates for admission into either of these divisions of the public service.

In this manner, it may be observed, that the Chair of Military Surgery in the University of Edinburgh, which has been the earliest establishment of the kind in Europe, may at length become the model of similar establishments in different countries. War, and all its demoralizing and expensive consequences, are doubtless conditions not to be desired; and, if it were possible to cease to cultivate the military art, it would be infinitely to the advantage, both of nations and individuals. Such anticipations, however, it is scarcely permitted us to entertain in the present state of the habitable globe. War is a necessary evil; and it becomes both nations and individuals to be prepared against its casualties and calamities. If one institution is more necessary than any other, it is that, the object of which is to diminish the number, and mitigate the severity of the various evils necessarily attendant on those engaged in military and naval duties.

Of the requisites of a complete course of military surgery, we have already spoken sufficiently explicitly, to enable our readers to perceive what such a course ought to comprehend. The work now under consideration, which, notwithstanding the previous performances of Hamilton, Luscombe, Millingen, and Marshall, must be regarded as exhibiting the first complete view of the subject, shows, that Sir George Ballingall has both formed a just understanding of his duties as a teacher, and has succeeded very well in their performance. That such a performance should be original, it would be unreasonable to require; and all that is to be expected is a judicious and methodical compilation from the best authorities. This, however, is a task of no small difficulty, since it implies not only extensive, and even accurate knowledge of the manifold writings, either on the general divisions of military medicine and surgery, or the particular diseases and injuries incident to seamen and soldiers, but the talent of judicious selection, perspicuous arrangement, and compendious statement, so that, without dwelling too much on any single topic, all may be treated at sufficient length to convey a general idea of their relative importance. The purpose of the teacher, in short, is to abridge the labour of research and collation to the student; to show him, amidst a great mass of materials, what is most necessary and important for him to understand thoroughly, and what he will find in actual service most useful.

These objects are, in a reasonably satisfactory manner, accomplished in the present volume; and, while the author has been at very considerable pains to place before the medical officers of the army and navy those views of the causes and treatment of disease which are most peculiarly adapted to their situation, he has studiously avoided that prolixity, and those minute details, which must have defeated their object, by encumbering the memory with many circumstances, which, however true, and even interesting, may be quite superfluous. In publishing these Outlines of his Course, in short, it must be admitted, that Sir George Ballingall has facilitated greatly the acquisition of a knowledge of their duties to those gentlemen who are destined to serve their country, either in the army or navy.

In the arrangement of the volume, the author has followed closely that of his course, which, he informs us, consists of three general divisions.

The first, which is of a general character, embraces a number of topics relative to the formation, discipline, and economy of regiments and armies, and, though not strictly medical, requires to be thoroughly understood by the medical officer who wishes to preserve the body of men to which he is attached in a healthy and effective state. This division of the work corresponds very closely in matter, if not in form, with the five preliminary lectures published by the author in 1830, and already introduced in the 34th volume of this Journal to the notice of our readers.

The second division, which comprehends the largest part of the course, is devoted to the consideration of those local surgical diseases, casualties, and injuries, which are incident to military and naval men in all parts of the globe, and to which, by the hazardous and variable nature of the profession, they are necessarily exposed. Of this kind are inflammation and its consequences; burns; ulcers, and hospital-gangrene; wounds, considered, *first*, according to their character, of incised, punctured, poisoned, lacerated and contused, and gun-shot wounds; *secondly*, according to the individual textures which they injure, as the arteries and nerves, with tetanus; and *thirdly*, according to the region of the body, as the head, spine, face and neck, chest and extremities, including fractures, luxations, amputation, and the circumstances by which it is required; ophthalmia, syphilis, gonorrhœa, stricture; and, *lastly*, the subject of the effects of punishment.

The third division embraces the consideration of the diseases incident to troops on foreign stations, and of those semblances of disease, which soldiers or seamen are not unfrequently disposed to assume, and the successful assumption of which is often the means of a fraudulent evasion of duty, or release from service. Under this head, we find a short sketch of the distribution of the British army in the colonies; a judicious and instructive account of yellow fever, dysentery, and the most common forms of liver disease; and, lastly, a short sketch of the diseases most usually feigned by soldiers and seamen, with the consideration of the best means of detecting their presence.

Of a work treating, in the manner now specified, of so many different subjects, it is easy to see that it is impossible to enter into any detailed account, since that would inevitably cause us to encumber our pages with an unprofitable repetition of matters, which have been often discussed already in different degrees of length and minuteness. It is sufficient to say, that Sir George Ballingall has, by a judicious selection of subjects and points deserving notice, contrived to communicate a large proportion of instructive information. In all doubtful questions, such as that of the necessity of trepanning in injuries of the head and spine, and the question of primary or secondary amputation in gun-shot wounds, he places before the surgical reader a fair view of the arguments by which he ought to be determined in either case. On the whole, we are satisfied that many parts of the work will be perused with much interest.

We have been desirous, considering that this is the first complete Treatise on Military Medicine and Surgery in this country, to dwell rather on its merits, than on any defects under which it labours. In a single octavo volume, comprehending a view of so many different subjects, it can hardly be expected that all defects are avoided. We nevertheless acknowledge, that we have seen few of sufficient moment to require animadversion.

We have only to observe, that in the list of books given at the close of several of the chapters, Sir George Ballingall has observed the alphabetical order, evidently for the facility of consultation and reference. The propriety of this method of arrangement is of course matter of opinion. But we must be permitted to remark, that the alphabetical is of little or no use in works where the books are arranged in the manner of the *Catalogue Raisonnée.* A preferable mode of arrangement, we conceive, is the chronological, or that according to the historical date of the publication of each work. By this the student is informed at once of the progress of the branch of knowledge which he studies, of the course of improvement which it has undergone, and of the order in which the different cultivators of it follow each other; and he is guided in his choice of the order in which he should consult or peruse the writings of each.

ART. VII.—*The principles and practice of Obstetric Medicine, in a series of systematic dissertations on Midwifery, and on the Diseases of Women and Children, illustrated by numerous plates.* By DAVID D. DAVIS, M. D. F.R.S.L. Professor of Midwifery in the University of London, &c. London, 1832–33. Numbers I. to XVII. 4to. Plates. Pp. 400.

NOTWITHSTANDING the obstacles thrown in the way of men of talent and respectability devoting themselves to the practice of midwifery, obstetric medicine has been successfully cultivated in Great Britain for nearly two centuries. From the year 1540, when "*The Byrthe of Mankynde*," said to be the work of Thomas Raynold, and the first book on midwifery published in this island, was printed, to the year 1651, no original work on the subject was put forth by a Briton. In the latter year, appeared the work of the talented and industrious Harvey, entitled, "Exercitationes de generatione animalium," an English translation of which was published two years thereafter. This is the first rational treatise on subjects connected with midwifery. All works respecting generation, conception, parturition, &c. previously written, were disfigured by absurd theories, unintelligible hypotheses, superstitious notions, or mis-stated facts.

It is needless here to mention particularly all the books on obstetric medicine, and its various subdivisions, which were published in Britain from the time of Harvey to the middle of the last century. We shall name only Dr Mawbray's Female Physician; Dr Chapman's Treatise on the Improvement of Midwifery; Dr Hody's Collection of Cases in Midwifery, by Mr William Giffard; and Sir R. Manningham's Compendium Artis Obstetricæ, and Aphorismata Medica.

Dr Mawbray is known chiefly for being the first public lecturer on midwifery, and for his hostility to instruments. Dr Chapman first described the forceps, and, by his work mentioned, tended considerably to improve the art as it then stood. Giffard's cases seem to be faithfully given. Sir R. Manningham's aphorisms are the best of his works, and may even now be read with profit. He was the founder of the first lying-in hospital in England. Since the middle of the last century, the writings and lectures of Hunter, Smellie, White, Denman, the Hamiltons, Burns, Clarke, Gooch, and Ramsbotham, have successively improved the treatment of the various affections to which females are liable, as well as the mode in which parturition ought to be conducted.

It was not without feelings of disappointment and regret that we perused those portions of Dr Davis' work, the title of which is prefixed to this notice. Published as it is in so assuming a form, and holding, as the author does, the chair of midwifery in one of the metropolitan medical schools, we had expected something more than a common-place system of midwifery, illustrated chiefly by cases known to most members of the profession who have paid due attention to the subject. Such, however, being the case, we do not feel ourselves called on to occupy the time of the reader by presenting to him an analysis of the work, and shall therefore content ourselves with making a few general observations on it.

The present treatise, of which upwards of twenty numbers have appeared, professes to be a series of systematic dissertations on midwifery, and the diseases of women and children, comprehending all the subjects usually discussed by professors of midwifery in universities. The portion which we now notice embraces the following subjects:—The anatomy, physiology, and pathology of the pelvis,—external genitals,—internal genitals, and unimpregnated uterus, occupying five chapters, and 395 pages. The method which Dr Davis adopts, is to describe first the anatomy and functions of each part in its healthy state, and then the morbid conditions to which it is liable. We are inclined to doubt whether our knowledge be yet sufficiently accurate and extensive to enable us to refer each disease to the organ affected, and in such maladies as require constitutional treatment, it is apt to divert the mind from the primary cause to one of the effects. We are, however, aware that objections may be made to any classification, and this, which at least has the merit of simplicity, may be as good as any other.

The anatomical descriptions we consider to be far too particular; many points being dwelt upon with tedious minuteness, which have no reference to the subject in hand. It is, of course, desirable that the accoucheur should understand well the anatomy of the pelvis, so far as that throws light on generation, parturition, and the diseases of the organs concerned in these functions; but we look upon the anatomical descriptions in this work, especially that of the pelvis, to be quite misplaced, however good they may be in themselves. A similar objection may be made to the manner in which cases and dissections are reported. Every circumstance that can possibly be dragged into the account is detailed with the same minuteness and precision as the most important features of the case; and in the report of one dissection, where the patient died with the uterus diseased, there is given the most insufferably minute account of the state in which every other part of the body was found. This is mere affectation. The style in which the work is written is far from being always perspicuous. It is, in general, prolix; and not a few passages will require to be read more than once before the meaning be understood.

Throughout the work, too, we discover a partiality for the employment of mercury in many cases, which we cannot help thinking might be cured equally well, if not better, by other means.

Of the plates it is impossible to speak in very satisfactory terms, as they are published without reference to any explanatory letter-press. Farther, therefore, than observing, that, as specimens of art, they are passable, we shall say nothing of them at present, but defer our opinion till the explanatory letter-press be forthcoming. The ordinary ones illustrating the anatomy of the pelvis, are exact copies of those which have been in circulation ever since the publication of the work of Dr Smellie.

To conclude, the expensive form in which this work is published, is calculated to render it almost useless as a didactic treatise; while the information is so far from being original, that we see no reason why it might not have appeared in the less assuming, and more convenient, form of an octavo.

ART. VIII—*Illustrations of the Mechanism of Parturition.* By CHARLES EMILIUS ROSS, A. M. M. B. &c.

THESE plates are intended to facilitate the study of the natural process of parturition, and they will doubtless be found useful for that end. But they are deserving of notice chiefly on account of their extremely low price, and as affording an example, though on a limited scale, of the successful employment of lithography in producing a cheap and useful publication for students. At no greater cost than eighteen pence, this publication contains no fewer than six quarto plates, executed in a style sufficiently good for the purpose intended.

Five figures represent the female pelvis in different views and sections, with lines drawn to point out the several diameters, axes, &c. Next follow different views of the fœtal skull, with the diameters marked. One plate shows the female pelvic viscera in the unimpregnated state, viewed in section; and there is lastly a plan exhibiting the changes of position which the child's head undergoes in its progress through the pelvis of the mother. The subjects of these representations have been selected with judgment, and the drawings seem to be sufficiently accurate to answer every purpose.

Art. IX.—*Sketches from the Case-Book, to illustrate the influence of the Mind on the Body, with the Treatment of some of the most important Brain and Nervous Disturbances which arise from their influence.* By R. Fletcher, Esq. Surgeon of the Gloucester General Hospital, and Consulting-Surgeon to the Lunatic Asylum near Gloucester. London, 1833. 8vo. Pp. 391.

In the early and rude period of Society, the diseases which afflict the human race are principally, if not exclusively, those which assail the material organs of our frame, and which operate by some direct impression upon that part of our constitution. When the means of subsistence are either scanty, precarious, or not more abundant than is requisite,—when the means of shelter and accommodation from atmospherical inclemency or vicissitudes are either imperfect, or not more complete than is urgently demanded,—and when, consequently, all the time and exertions of the individuals are spent in procuring the necessaries of life, the disorders incident to the human body are chiefly the results, more or less direct, of excessive fatigue, penurious or irregular modes of living, and the injurious operation of physical agents generally. Diseases, then, are generally of an acute and violent character; and fevers of various types, inflammatory affections of different tissues, or those chronic ailments which are the result of inflammatory attacks, chiefly predominate in such a stage of society.

The human body is in such circumstances almost a mere animal machine, with that predominance of the material part which results from the constant necessity for occupying the corporeal organs either in active exertion or passive duties. The moral and intellectual part of our frame, though not extinct, is dormant. It possesses little influence either over the material part, or over its disordered conditions; and while its condition may be affected by that of the corporeal organs and their functions, this occurs so rarely, and in degrees so trifling, that it scarcely attracts attention under such circumstances. In such a state of society, indeed, the corporeal frame is every thing, and the immaterial part goes for absolutelynothing. The peasant, the fisherman, and the shepherd, though liable to many acute diseases, scarcely suffer from those attributed to affections of the mind. The mind is with them an agent, of the existence of which they do not think, and the influence of which they do not recognize. The North American savages, before the intercourse of the Europeans had given them a taste for intoxicating liquors, and introduced the adventitious habits and desires of civil life, were, according to Rush, subject only to fevers, inflammations, rheumatisms, and the more energetic, manifest, and intense forms of morbid action. Since that period, they have become the prey of numerous chronic ailments; and instances of insanity and nervous disorders have been not unfrequent. By becoming half-civilized, they have parted with all the valuable privileges of savage life, and all its immunities from the effects of luxury; and on receiving the fatal gifts of a premature refinement, to which their condition was not fitted, they have acquired also most of the diseases which prevail in long-established and polished communities.

The revolutions which take place in the disorders of such a state of society as that now alluded to, are perhaps examples of an extreme case; but the general uniformity of the change is too well demonstrated to admit of much cavil or dispute. In communities which rise gradually from rudeness to refinement, from poverty to wealth, from penury to abundance, and from sobriety to luxury, the change which the character of their predominant disorders assumes, is in a great degree referable to the increased and increasing influence of the immaterial part over the material, and probably of the nervous over the other systems of the animal body, combined, however, with an injudicious system of moral discipline. Habits of labour, and corporeal exertion and activity, are then supplanted by those of indolence and sloth; occupations carried on in the open air, give place to sedentary pursuits; habits of temperance, restraint, and regularity, give place to those of excess; or the injurious effects of the latter are not counteracted by the laborious exercises which, in a less refined period of society, come in place of the influence of the former; and the mind, indulged in numerous false desires, and gratified in many idle wishes, finds always new ones as the old are gratified, and at length acquires an undue and marked preponderance in the economy, which renders it more an inexorable tyrant than a judicious guide. Void of that energy, firmness, and self-command, which is absolutely necessary for the well-being of the individual, it becomes fanciful, capricious, and arbitrary, unused to opposition and untrained to endurance, and thereby unfit for the frequent adverse circumstances of real life, —unable to brook disappointment, or resist adversity. In such circumstances, the mind becomes gloomy and apprehensive; the temper peevish and fretful, and the judgment feeble and irresolute; the individual loses more or less of his self-command, and capacity for action; and as he is thus rendered unfit for any duty which requires either perseverance, fortitude, or decision, he becomes useless as a member of society, a burden to himself, and to all his friends.

This influence of the mind over the material part of our organization, may be entirely doubted by those who have neither felt nor witnessed its effects; and it is well for the world at large that it is so doubted. We think even that it is injudicious to admit its existence in a very unqualified manner; and we are further satisfied, that it may be subdued and overawed, if not annihilated, by strong and decided mental efforts. But it is impossible for the physician who has seen many of the complaints prevalent, not only among the higher and wealthy ranks, but even among the lower and middling classes, in a community much refined and inured to artificial habits, to shut his eyes on the frequently observed fact, that much of the mischief proceeds from the undue influence of a badly regulated mind.

It is commonly believed, and daily asserted, that the *varium et mutabile*, the weak and infirm of purpose, is the peculiar characteristic of the mind of the female and the child. Probably this may be the case in ordinary circumstances in society, where habits are still natural, and before artificial and luxurious modes have broken the energy of the mind. But certain it is, that when this state of society has taken place, we often witness in the stronger sex the same weakness and changeability,—the same want of energy and listlessness, which is observed in the most hysterical female. The prospect of misfortune in business,—the news of a sudden calamity,—losses in trade,—in short, any disappointment where great expectations were confidently entertained, are often observed to produce these fits of mental weakness, with proportional disorder of the corporeal functions. Indigestion, loss of appetite, with great nervous weakness and faintness, and occasionally hysterical sobbing and floods of tears, have been observed in some instances to mark the influence of the moral affection on the animal part of the frame. It has been long matter of observation, that a piece of bad news will, in some persons, give an immediate fit of sickness and indigestion. Senac mentions an instance in which he saw the history of a dreadful event produce convulsion, fainting, and death. Tulpius mentions an instance of fatal ileus induced by a fit of anger; Falconet records an instance of a violent fever induced by the same cause, and proving fatal in twenty hours; and Zacutus Lusitanus and Turner mention cases in which it was followed by sudden death. Lastly, Desault has remarked, that the diseases of the heart and aneurisms of the aorta were multiplied during the bloody period of the revolution, in proportion to the calamities by which it was attended.

This subject, and the explanation of its phenomena, has attracted the attention of many observers, moral, medical, metaphysical, and physiological; and a great deal of vague, and not very satisfactory speculation, has been advanced by different persons. Willis and Vieussens had recourse to the nervous system as the only means of explaining the phenomena, and ascribed the effects of these intense moral impressions to the influence of the nervous filaments by which the arteries and veins are surrounded. But this idea was opposed by Cheyne; and the whole doctrine of nervous influence of these twigs on the arteries, Haller conceived he had completely overthrown. This physiologist nevertheless admitted, that the nervous system exercised some influence over the vital organs, as the heart, stomach, and intestines, cutaneous follicles, and the intestinal villi; and while he denied that the will was under their control, he admitted they have considerable influence on the emotions and passions. He further refers their effects on the heart and pulse to two general heads, according as the motion of the blood is enfeebled or augmented in force; grief and fear being in the first class, or what physiologists denominate the depressing passions; and anger, joy, love, and terror being in the latter, or exciting emotions. He admits also, that there is some influence to be traced to the operation of the small vessels, and that it is similar to energy of the nervous system, he admits may be inferred from the appearance named goose-skin, and the erection of the hairs in a fit of extreme dread.

We must observe nevertheless, that Lucae, in an essay published at Francfort in 1810, undertakes to re-establish the doctrine of the influence of the nervous twigs on the blood-vessels,* in opposition to the conclusions of Haller.

Cornelius Albert Kloekhof, a physician of Leyden, had in 1753 published a work on the changes in the consistence of the brain, as a cause of mental disorders, which powerfully contributed to render the reasonings on the influence of the nervous system more precise.

Tissot entered on the minute and detailed consideration of the subject where it was abandoned by Haller; and, in a particular account of the structure and properties of the nervous system, ascribed to the emotions and passions a degree of influence which was then believed to be overrated, and which probably was so, if applied to society generally, but might be true of France and Geneva, from which he drew his experience. He maintains the general and fundamental fact, that diseases of the nervous system had become more frequent in a proportion greatly more considerable than others; and he contends, that, though formerly they were the rarest of disorders, they had then become the most frequent, especially in cities.

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* Observationes Anatomicæ circa nervos arterias adeuntes et comitantes. Francof. 1810.

Much about the same time, Pomme gave a very complete and extensive view of the influence of the moral feelings and emotions in inducing corporeal disease, and assigned, like Tissot, a very large share to the influence of the nerves.

None of these authors, however, in this inquiry, sufficiently distinguished the two sets of causes which formed the subject of investigation,—the one, the influence of the nervous system, properly so named; the other, the influence of certain states of the mind, of the emotions and passions, either in affecting the frame generally, or inducing corporeal disease. The first person who did this in a satisfactory manner, was Dr Falconer of Bath, whose *Dissertation on the Influence of the Passions upon Disorders of the Body*, published in 1784, still contains perhaps the most methodical collection of facts and arguments, and gives the clearest and most precise view of the subject extant.

Most of the speculations and reasonings, however, of the continental authors, were still rather vague and unsatisfactory; and as the subject is itself one which rather favours this species of desultory discussion, writers appeared to think themselves thereby warranted in indulging in the most vague and unconnected reasoning, and using the most loose and declamatory language whenever they attempted to consider the influence of the mental functions over the corporeal.

Bichat at length appeared, and by introducing an old distinction of the independence of the two orders of functions in the animal body, which he erected into two separate forms of vital action, was enabled to classify, in a more distinct and exact manner than heretofore, the various phenomena displayed by the body when under the operation of moral causes. The mournful events of the revolution had afforded Bichat, in common with Desault, Corvisart, and many others, opportunities of observing the influence of the depressing passions, and especially of the incessant dread under which the Parisians then lived, in producing various organic affections, especially of the heart and lungs, and even occasionally of the stomach; and they led him to delineate a picture, of which certainly the colouring is abundantly vivid, but perhaps not more so than that of the real objects from which it was derived.

This physiologist was inclined, in explaining the mechanism of the emotions and passions over the corporeal organs, to discard the influence of the nervous system entirely. This influence of the passions on the organic functions, as he termed them,—or the vital functions of Haller,—was a sort of admitted ultimate fact, which could neither be doubted nor denied. Grief, anger, dread, and melancholy, all act, he maintains, directly upon the heart and organs of circulation, and not on the brain, and whatever lesion they seem to the superficial observer to cause in the nervous system, is through the intermediate influence of the heart.

"The keen impression," he continues, "felt at the *pylorus* in violent emotions, the indelible trace of them which this organ sometimes retains, and whence originate the scirrhous tumours of which it is the seat, the sense of constriction felt in the region of the stomach, at the *cardia* especially; in other circumstances, the spasmodic vomitings which occasionally succeed all at once to the loss of a cherished object, or the information of a fatal accident, in every kind of disorder induced by the passions; the sudden interruption of the digestive phenomena by an agreeable or unpleasant piece of news; the affections of the bowels, the organic lesions of the intestines and spleen, observed in melancholy and hypochondriasis, diseases which are either introduced or accompanied by gloomy affections; all indicate the closeness of the link which connects the state of the digestive organs to that of the passions."—"Nor have the secreting organs a connection less intimate with the affections of the soul. A sudden fright suspends the course of the bile, and produces jaundice; a fit of wrath is the frequent cause of a bilious disposition, or even a bilious fever; tears are shed abundantly in vexation, in joy, and sometimes in admiration; and the pancreas is often the seat of disease in hypochondriasis."

Then, after applying the same doctrine to the processes of exhalation, absorption, and nutrition, in which their effects are much less evident and perceptible by reason of the diffused character of the organs, he adds, that they are nevertheless equally real, and, at the end of some time, become manifest in the external aspect and physiognomy of the individual. "Compare the man," he exclaims, "whose whole hours are attended with grief, to him whose days are spent in calmness, ease, and tranquillity, and you will recognize the difference between the nutrition of the one and the other. Remember the time when all the gloomy passions—fear, melancholy, and the thirst of vengeance—seemed to hover over France, contrasted with that when security and abundance invited thither the gay emotions so natural to the French;—remember comparatively the external habit of all persons at these dismal periods, and you will decide if the function of nutrition did not suffer from the influence of the passions. Even the popular expressions, *to pine with envy, to be gnawed by remorse, to be wasted by melancholy,* indicate this influence, and show how much the passions modify the nutritive process." *

We acknowledge, that many years ago, when we perused these delineations, we believed that they were either much exaggerated, or applied chiefly to the state of society in France. Aware of the characteristic weakness of the mind in such a state of society, and of the readiness with which many foreigners appear to give way to their feelings, we were disposed to believe, that it was there only, that the corporeal organs submitted to this overpowering influence of the moral feelings, and that in this country, where all the passions and emotions were under more powerful regulation and a better system of moral management, if organs became diseased, or functions disordered, it could not be from the inordinate influence of the mental feelings. Various circumstances since that period have, however, contributed to effect some change in this opinion, and have induced us to believe, that the influence of the emotions on certain classes of individuals, is not much less than it was represented by the foreign authors. Some persons appear to be so constituted, with minds so extremely feeble, and so easily impressible, that they are constantly receiving impression from every casualty, and are quite unable to be in the midst of any business which excites their feelings, without suffering indescribable disorder in one or more of the corporeal functions. Much of this, we are confident, is attributable to their want of firmness; but this does not alter the state of the facts. The causes are applied, and the effects succeed with great uniformity and certainty; and the physician has only to infer, that in such persons the state of the mind is an actual and powerful cause of much corporeal disease.

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* Recherches Physiologiques, Art. VI. § ii. Pp. 51–57.

This field of psycho-physiological observation, no one has cultivated more assiduously than Mr Fletcher of Gloucester, whose Medico-chirurgical Notes and Illustrations we had occasion to introduce some time ago to the particular attention of our readers. From various circumstances, though we know nothing personally of Mr Fletcher, we fear that he has been himself a sufferer; and though this circumstance may better qualify him to expound the mysteries of psychological pathology, it is also in danger of leading him to attach too much importance to the causes, the influence of which he studies to unfold. It is nevertheless manifest, that a subject so complex, and occasionally so vague and mysterious, requires for its developement and elucidation such a devoted believer in its influence as the present author.

The first elements of the inquiry may be stated, after admitting the fact of connection between the operations of the mind and the corporeal health, in the following extract.

"Whatever power it may be, or whatever name may be affixed to it, it is, beyond all dispute, to this quality of mind, sensibility of feeling, that the vast multitudes of its affections or injuries are to be ascribed. To revert, therefore, to the manner in which the mind is wounded, is to remember this quality, and especially the peculiar character of the patient, and afterwards seek out what are the blows most capable of inflicting mischief upon this particular mind; and for practical purposes, what the signs of their existence evinced in the body; and finally, the malady and its effects once discerned, what are the remedies to be applied, or in other words, how far is the mischief capable of reparation.

" Grief, in a truly sensitive mind, for the loss suddenly sustained of a once beloved object, who has not merely died, but is lost to you for ever, disappointed you in a kind of moral death, is a thousand times more dreadful to memory than the mere extinction of mortal life, and is, therefore, perhaps the most acute, refined, and noble of all mental wretchedness.

" Grief is sometimes of a less elevated character. Thus, one of the severest examples of ill health from affliction I ever saw, arose from a sudden and entire loss of fortune, the misdeed of a friend. But it happened to a young man of fine feelings who had just married, with no expectation of such a misfortune, and who suffered from having brought a beloved wife into all the horrors of certain poverty."

" The nature of the case was the wide range of symptoms called indigestion, which is probably nothing more, quite enough, than a general disturbance of the nervous system, beginning, when from affliction, in the brain or organ of the mind. This case lasted three years. But the nervous system is even now constantly and wakefully disposed, and anxieties easily disturb it to a certain extent."

All this evil, Mr Fletcher thinks, is effected by the intensity of the emotion striking the nervous system generally, and producing such a sudden shock as the stroke of a cannon ball,—and also the brain, in which he says it causes a species of concussion or nervous apoplexy. When it does not immediately extinguish life, the mind next affects, through the brain, the stomach, where, he adds, " a peculiar and wide-spreading malady is implanted. This may be called indigestion or *dyspepsia;* but I believe it to be strictly a nervous affection of the stomach, the nerves of which being generally the first affected; though irritation from other quarters may be the means of exciting the phenomena of the disease, without the gastric nerves being affected in any other than a secondary way, or as part of that system." To the former affection, Mr Fletcher applies the characteristic denomination of *mental indigestion*, in contradistinction to *physical* indigestion, or that from material causes; while he at the same time observes, that the term is inadequate to express the exact nature of the affection, as the appetite is often good and digestion complete, though, when these nerves are affected, it is more slowly performed. In short, the distemper is originally in the mental feelings, which then influence the material organs of the individual.

An illustration in Mr Fletcher's own style, which is rather graphic, and somewhat abounding in unction, may place this matter in the clearest light. Mr Fletcher first observes, that, in the case of acute grief or very serious calamity, the sufferer loses all appetite, and he then proceeds in the following manner.

"Again, he might have been happy, swimming along in the full tide of enjoyment, and had taken a good dinner, which agreed with him exceedingly well, that is to say, no signs of indigestion followed the agreeable act of eating, and, cheered with a glass of wine, he goes out, refreshed by the meal, to look for his evening letters. He gets one, and it is found to contain a returned bill of L. 5000, he himself being unable to find *one*.

"Now the effect of this blow upon the mind of a sensitive man, and thence on the stomach, may not be known to everybody from such a cause; and it may be fairly supposed, that nobody wishes to have any experience on the subject. Nevertheless, events of this kind happen.

"Such an occurrence in persons of feeling, would, in sporting language, be called a *stomacher*. And really it is so. Digestion would be instantly suspended,—the stomach would be suddenly disordered,—the most ordinary signs of indigestion follow,—and this organ, which before the mischievous intelligence yielded no disagreeable sensation at all, would now feel loaded, or probably be disposed to yield up its contents altogether, upon the very spot where it received the injury."

He then adverts to another mode in which this mental emotion produces signs of indigestion in persons who, under ordinary circumstances, digest well, and who take considerable quantities of food and drink, yet in whom, the moment their minds become anxiously occupied with matters of deep interest, appetite fails, and digestion is for a time remarkably enfeebled and impaired. This is illustrated by the following case.

"I know a legal gentleman who enjoys perfect health, except on occasions of professional anxiety. Upon these occurrences it invariably happens, that soon after this feeling occupies the mind, his tongue, which was previously clean, becomes dark, or excessively brown; the appetite gone, and if he should happen to take food, it irritates, and severe pain is felt in the stomach, which never occurs at other times."

"This gentleman attends our assizes, and it often happens, as a matter of course, that powerfully interesting cases occur, in which he is engaged, that disturb his health in the way described. But no sooner are the assizes concluded, his anxiety removed, (that is to say, within two hours afterwards,) than his tongue becomes perfectly clean, and his appetite, a distinguished one, returns with such uncontrollable force and effect, that this limb of the law stops at a half-way house on his return home, where the limb of an animal less dangerous than himself, satisfies in some measure the capricious humour of his otherwise most respectable and certainly very capacious stomach."

It is not always, however, on the digestive organs that these mental feelings operate, and Mr Fletcher then adduces the examples of young women of the habit called nervous, who, in consequence of some cause of wrath or disappointment, forthwith fall first into fits, hysterical we presume, and then into a train of bad health, which is not removable for months. One case of this kind, related by the author, in which a firm refusal of a father to allow his daughter to go to a superb hunt-ball at a celebrated watering-place, was followed in the person of the young lady by these consequences,—shows most indisputably that parents ought to teach their children betimes the useful habit of self-denial, and that young ladies especially, ought to inure themselves, in due season, to the inestimable virtue of patience and equanimity, under crosses and disappointments. We conceive, indeed, that the grand source of the whole of this evil is to be sought in the badly regulated mind of the individual, entertaining extravagant and absurd expectations, sometimes of particular forms and objects,—sometimes of the world at large,—and thereby fixing the wishes on objects which, if not unattainable, are at least not attainable in the ordinary course of events.

At this conclusion, indeed, Mr Fletcher himself arrives, but after dwelling much on what he calls, in the language of the day, *deep feeling*, that is the habit of allowing the imagination to dwell on all manner of beautiful and agreeable prospects, whether gay and social, or sad and solitary, building all sorts of castles in Spain, where no materials are to be found, and, in short, forming the most romantic and magnificent expectations of the world; and when these prove, as they cannot fail to do, to be perfect delusions, then come the disruption, the disappointment, and the consequent vexation and distress, rendered so much more poignant because they prey on a mind of exquisite natural sensibility.

Much of this mischief also, Mr Fletcher traces to the practice of disregarding all distinction of character in schools, whether public for young men, or private for young ladies, and he stigmatises very severely the practice of mingling young persons of all kinds, those of coarse minds, as he terms them, and those of more delicate feelings, and applying to all the same identical treatment. In these situations young persons of this exquisite sensibility, Mr Fletcher contends, who might be made, according to him, the noblest of the species, are daily and annually rendered, by an injudicious method of education, completely unfit for any useful purpose, and sometimes deranged, or, at least, unfit for business or for life.

"That it is to this undisciplined and beautiful quality of character that the deepest and most acute forms of mental suffering owe their origin, is distinctly evident from the fact that amongst females mental or nervous maladies (very much the same) prevail in the greatest extent, and infinitely more than they are supposed to do.

"The source is their refined and abundant nervous power, excited into wild romantic expectations by a false course of education, which yields equally false views of the objects of existence, and produces a childish love of personal attraction and finery,—and by novel reading, which always extends the quantity of sensibility, while it weakens its beauty and quality, and excreates the only power that can control it, that is to say, the understanding.

In this description, it is not difficult to perceive that Mr Fletcher delineates the effects of a mode of education in which the fancy is allowed full scope,—in which the realities of life are never once placed before the deluded victims,— and in which, consequently, the slight exercise of reason that ever takes place, is conversant with mere phantoms and creatures of the imagination. Is it astonishing, we ask, that such persons become the victims of every species of mental disease? It is more astonishing that they should so long have escaped.

Mr Fletcher then proceeds to describe more minutely the phenomena of that disorder which he has christened *mental indigestion*, in contradistinction to physical indigestion, or that from affection of the stomach; and he labours to show his reader, that it originates in the mind alone, and that the common idea, that the stomach is originally disordered, and renders the patient irritable, peevish, fretful, and crazy, is a most complete and perfect delusion. This fretfulness and anxiety exists in the mind, and gives rise to the gastric disorder. It is to be remembered also, that, according to Mr Fletcher, this form of indigestion is not attended by very manifest disorder of the stomach; and if the appetite be impaired, it is in no degree proportionate to the mental disorder; and it is on this account, that the ordinary dyspeptic treatment is of no avail. The diet, indeed, must be regulated, to prevent the complaint from being aggravated, "since," says Mr Fletcher with some sagacity, "an overloaded stomach, with a bottle of wine, at such a season of this extremity of human suffering, in a man of naturally most exquisite feelings, would probably, from this connection of brain and stomach, some time in the following day be followed by a pistol-shot though the head, or the application of a razor to his throat; and I have no doubt that such has been the exact cause and fate of many of the most ornamented of our race, whose names the present generation remember with a mingled feeling of admiration and mourning."

Now the catastrophe here anticipated, seem to us not at all extraordinary, if preceded by such measures. For independent of the fact, that to a person of robust health *an overloaded* *stomach*, with a bottle of wine, cannot fail to be highly injurious;—it seems quite unaccountable that these persons of such exquisitely delicate feelings can perpetrate so great an enormity as to overload their stomachs, and swallow such quantities of liquor. How these persons of deep and refined feeling—young ladies they might be—should feed on such gross materials as beef and mutton, and then make their throats a thoroughfare for wine, confounds all our conceptions of consistency, order, and *bienseance*. To our ideas, such proceedings appear quite irreconcileable with the idea either of refinement or sensibility; and we conceive that all persons with this singular mental irritability, would be infinitely benefited, if they fed, like Lord Byron, on potatoes, bread, and the pure element.

Some instances of this malady in which the stomach is scarcely at all affected, Mr Fletcher distinguishes by the name of *Mental Hypochondriasis*. This term, however, he remarks, only inadequately conveys the idea; for it is quite degrading and reproachful, he conceives, to the patient, who, according to Mr Fletcher, is a still more noble and exalted being than any of the last class. To believe Mr Fletcher, indeed, the mental hypochondriac is the most noble, dignified, and exalted specimen of the human race; and all those who view him in any other light, are stigmatized as at once foolish and ignorant.

After observing that the mental hypochondriac has a sort of proud consciousness that he belongs to a class of persons, some of whom were most celebrated for worth and talent, he proceeds.—" The humblest, therefore, of the entire class of mental hypochondriacs, which cannot be a large one, is too elevated to submit to derision and scorn, even when they proceed from gross and unfeeling ignorance. He talks not, therefore, to the multitude. There is a delicacy and a dignity about him; and he speaks only of his grief to the select few, from whom he is sure to obtain sympathy. But mark,—though to them he speaks freely, yet it is of the distresses of his mind only. And here is the distinction between the mental sufferer, whose real evils are increased by the magnifying powers of his imagination, and the ordinary hypochondriac."

All this may be correct or not. But it must render mental hypochondriacism very interesting and very general, to hear it described in these magnificent terms; and while some persons may be real sufferers, not a few, we conceive, are very likely to affect the malady, for little other purpose than to be classed among the elevated and noble beings of Mr Fletcher. Like Master Stephen, who was convinced that to be melancholy and gentlemanlike were the same, they will not only become so, but have their Master Matthews following them.

In the genuine form of this species of disorder, as subsequently described by the author, it is quite clear, that much of the mischief proceeds from the individual cherishing and indulging his gloomy humour, without any effort to abate it, by considerations derived either from reason or from religion. Take the following picture, which is the very height of presumptuous derangement.

> "Bottomed in misery enough, a hitherto unhappy life, a fretful and repining imagination, sees only in the remainder of it a dismal prospect of additional anguish. A cool, thinking, and mischievous despair begins to occupy the mind of the sufferer. There is yet more in store for him of those very horrors so appalling, terrific, and unrelenting in punishment, which have filled his mind with a gloomy sternness, and led him more than once to look with complacency to the edge of his razor. What then? Why, he is now in imminent danger, for he begins to calculate philosophically upon the choice of evils. The present one is so intolerable, that he wishes to get rid of it on any terms. He resumes the razor. A little pain only can be felt, and the deed may be done which will bring him full and complete relief! The rash man is now lost, unless his thoughts turn fondly to some loved object to be left desolate, or to things beyond the grave."

The man who reasons in this manner is certainly an object of pity; but we further think that he must be regarded as a monomaniac, although Mr Fletcher is most anxious to rescue him from this discreditable imputation. His mind must have been allowed to go wrong by a long course of mismanagement and pernicious indulgence. Had his parents or instructors never taught him that the world is a place not of enjoyment but of trial, that there are in it such things as calamity, wickedness, and treachery of all kinds, and that the only sure antidote against the injurious effects of all these agents is that firmness and strength of mind which can be derived from no other source but rational religion? The efficacy of this, both as preventive and curative means, Mr Fletcher afterwards considers fully in his ninth chapter, which is devoted to the subject of moral management.

But the most extraordinary part of the view here given by the author is, that he sets the whole of this mischief down to the account of God Almighty, and represents it as incalculable. "To measure the depth, quantity, and variety of affliction with which the Creator has visited the heart of man, would exceed all mortal means and calculations." It can scarcely be doubted, that for wise purposes Heaven sees meet to mingle with every condition in life a certain proportion of affliction, in the shape of loss of friends, loss of fortune, failure of worldly prospects, and other varieties of adverse circumstances. In firm and well-regulated minds, the natural effect of these circumstances is beneficial, rendering the mind still more energetic, and making the individual sufferers cautious, prudent, and circumspect, as it will very often be found, on close examination, that most of the evils already referred to spring from some disregard or inattention to one or other of these qualities. In the weak-minded, the fretful, and the irritable, on the contrary, these adverse circumstances produce too often still more mental weakness, giving rise to despondency, and augment, to an incredible degree, the natural fretfulness and waywardness of the temper. But who, pray, it may be asked, is to blame for all this? Certainly the mind of the individual himself, the unhappy constitution of which renders the ordinary occurrences of life a constant source of vexation and chagrin, and converts what ought to corroborate into the means of enfeebling and paralyzing his mental powers.

We agree perfectly with Mr Fletcher, in the great delicacy and address requisite in conducting the treatment of such melancholy cases as those now described; and we believe that his suggestions on this point, if more frequently adopted, would be more beneficial than the methods too frequently practised by mere physicians. The following observations, though still savouring of the bias we have throughout observed in looking upon the mental hypochondriac as a person elevated above all the rest of the human race, nevertheless deserve much serious attention, as their accuracy must have been recognized more than once.

"The control or the direction of the mind's movements often requires the aid of another, whose precision, coolness, and knowledge may be equal to the important task. But it is both a difficult and delicate undertaking. The exercise of reason, unseasonably recommended to the patient, is often but the exercise of folly on the part of the adviser, for it is dangerous ground to occupy in the presence of the highly cultivated mental sufferer. You forget that he possesses as much reason as yourself, and has tried all its aids without success. Nor is it indeed reasonable to suppose, that you can drive away with argument the most heartfelt disappointments, and long built up miseries of the sensitive man. . As soon, therefore, as you begin to utter the string of common-place truisms usual upon these occasions, 'consider your duties, &c. &c. &c.' it may be expected that the patient's confidence, in your understanding, is rapidly passing away. Quickly discovering your ignorance of human nature, the eye, which beamed with pleasure on your arrival, lowers and retires within its socket as you proceed in your learned discourse. The ancient bitter curl of contempt resumes its position on the lip, and the sufferer will, as he refines upon every thing, especially in argument, first floor, in a flash of temporary intellectual vigour, all you have hung together, and then retire to his gloomy solitude, leaving you with no pleasant feelings of selfmortification at the ridiculous figure you have been exhibiting in doing mischief, and with a conviction, that even reason, like other valuable things, requires skill and caution in its employment.

"The next time you make your visit, you will probably be welcomed with the pleasing expression of 'not at home.' This failure of your attempt to cure the highest form of mental wretchedness, is the result of ignorance of character. The reason so much vaunted and omnipotent, would have come in its proper place, and with effect, when, by intellectual processes and time, the memory of misfortune had somewhat faded. But even then, argument with the intellectual and irritable mental sufferer should be conducted so as to lead rather than to vanquish.

"Such clumsy reasoning attempts, however, usually proceed from the friends of the patient, who, it may at once be said, are rarely fitted to be near him. A thousand to one, if any among them has any correct notion of his excessive refinement and sensibility, either from a knowledge of his malady, or from a similarity of original character; and hence they are constantly tearing and bruising his exquisite feelings. The latter, too, always expects—naturally enough—more from his friends than from strangers, and is irritated if their conduct does not always meet his wishes, which it rarely does. But from strangers, he expects no such refinement or delicacy, and he thus escapes this source of irritation. Moreover, generally, the usual habits of courtesy and distance observed among strangers, prevent those liberties which amongst relations might appear warrantable, and which are often highly mischievous. Living with friends, therefore, is as undesirable for the patient as living among the irritation of business, for they are both irritations. Moreover, one of the relations of the patient might have been connected with the original cause of the malady itself. For the patient to live near such a source for association and irritation, would be an act of insanity in those who permitted it. The constant or occasional view of the cause of all his sufferings, would surely not diminish, but serve to rivet them into an incurable habit of gloomy despair and melancholy forebodings.

"The footsteps of this unfortunate enemy to its peace often linger in the fancy,—in the ear,—now, on a nearer and certain approach, agony, mixed with disgust, anger, and suspicion, dart from the eye, and is seen in every agitated motion. In the next moment, the sufferer will all at once close his eyes, his ears with his fingers, and with a vigorous movement of his foot against the door, he bars to the foe all entrance there; or, to prevent even the chance of a sudden visit, he creeps on tiptoe about the house, listening for the fatal footstep, and gently closes all the doors, and bolts and bars his own, and plugs the key hole, that the sound of this dreadful source of his association shall not reach his straining and anguished ear. This is neither madness nor whimsicality, as it may be called, or has been called, by those who know but little of the occasional power of human feelings, and the anomalies of the human mind, for such conduct is, in truth, an energetic and wise exertion of the patient's reason to prevent that very calamity overtaking him, of which he is already accused of being the victim. All associations of this important kind must therefore be excluded, by removing their causes; and the acute medical superintendence of the harassed mind, verging to insanity, should be actually on the watch, so that no such powerful destructive irritations should ever reach it.

" After two hours' rest of body succeeding breakfast, but in which the mind has been fully occupied, the skill of the physician, founded always upon his knowledge of the character of his patient, should be directed towards the best method of filling his mind by agreeable objects, till the dinner-hour or evening approaches, when the dangers of the day and brunt of the battle will be over; for all such patients as these under consideration invariably get better, and, in general, become very different beings when evening has spread her mantle over the earth."

One of the most useful forms of applying moral management, is represented by Mr Fletcher to be the practice of composition. It appears as if the effort at certain stages of the disease, of arranging and expressing the thoughts, of giving vent to the feelings, and even recording the sensations, past or present, were useful in weaning the mind from those morbid trains of thought which constitute so conspicuous a part of the disease. At all events, Mr Fletcher evidently reposes in this resource the greatest confidence in effecting the recovery of patients, either with mental hypochondriasis or irritable brain. We have no desire to underrate the utility of the remedy, or oppose our experience to the more extended observation of Mr Fletcher; but we must remark, that there are very few severe cases of this disease which admit of this method of treatment; and the cases in which it is admissible must be either mild, or already in the way of recovery. The commencement of the task he admits, in some instances, to be difficult; but this difficulty, he adds, is the only one; and no sooner do patients begin this species of mixed mental and corporeal exertion, than it becomes easy, agreeable, and at length desirable. He recommends that the patient should at once, when the dark hour approaches, proceed to write; and, for this purpose, he directs that writing materials should, at all times and places, be within the reach of the patient. The great theory of the efficacy of this measure, is simply that of occupation. It is by the fancy being allowed to dwell too much on its own idle or gloomy creations, that the disease is generated and continued;—it is by the want of some strongly interesting or exciting employment, that the morbid trains of thought are allowed to be so long protracted;—and it is by giving the mind something which interests, rouses, and occupies it, that these morbid trains are either interrupted, or rendered less continuous.

We have already given many extracts from this curious book; but we must subjoin the following, as a remarkable proof of the efficacy of mental occupation generally, in removing this morbid state of the mental feelings. The description is certainly marked by high colouring, and represents the subject as a perfect character.

"The most wonderful man I know for talent, extent of information,—for taste, eloquence, and uncommon power of fascination,—was a very unhappy person, in his middle age. His health suffered in consequence, in the shape of stomach complaints.

"Experience taught him the necessity of raising his mind for a moment's relief, from mental anguish, and the obloquy of an ill-judging and ill-natured world.

"At forty years of age, this gentleman, who previously had been but an idler,—to say no more of him, (as most rich men are at that period of life,) incurred the heavy misfortune of encountering one of the most dreadful shocks which any mind can endure. He was for some time in a state bordering on insanity; medicine did him no good, travelling did more, but, most of all, composition. Thus, the practice of this remedy led him gradually into literary inquiries; and, in a few years, he became a star or constellation of unusual brightness in the intellectual world.

"The unpleasant circumstance alluded to, however, changed the man from weakness to strength, from coarseness to boundless elegance and refinement. He now reads, writes, and composes well in Spanish, Italian, French, and English,—is possessed of an immense knowledge of ancient and modern literature,—an excellent botanist,—draws beautifully,—and of works of art is a profound judge; but, most of all, with this full mind, he finds no difficulty in pouring its stores upon the fortunate few who may happen to hear him, with a sweetness of language and manner, and general force and effect, which is as astonishing as it is captivating.

"Moreover, to him did the habits which produced these great results prove beneficial, for they completely cured an unhappy mind and disordered health, which arose from it. Their regular and constant practice, since continued, have insured his health and happiness steady and unbroken."

Then follows the history of the daily routine of occupation.

The medical treatment is very skilfully and rationally explained, in so far as the author, though looking incessantly to the brain, does not neglect other parts of the organized system. He condemns indiscriminate purging; discards the blue-pill and black draughts of Mr Abernethy; is not so scrupulous in dietetic injunctions as most physicians; and trusts chiefly to that common-sense principle which allows what is found to agree with the individual, however it may be condemned by the dogmata of the schools. Thus he allows patients pure fat, butter, sliced bacon, salt beef, and all sorts of rich stimulating food, providing they agree with the stomach of the patient, that is, are not rejected; while he sneers with scorn at the oft eulogized water-gruel and other thin slop-like forms of aliment. Mr Fletcher is indeed inexorably severe upon the whole tribe of dietetic doctors, and tells them, that whatever benefit their regimen and regulated meals may produce in physical indigestion and hypochondriasis, they are altogether useless in the mental forms of the disease.

The chapter is concluded with a very passionate and tender apostrophe to the sufferer from mental disease, exhorting him to the practice of early rising, and breathing the cool morning air, as the most effectual and salutary sedative of his agitated spirit.

In the twelfth chapter, there are some interesting observations on the influence of the state of the mind on the issue of great operations. The rest of the volume contains a selection, from the note-book of the author, of very interesting and instructive cases, illustrative of the various forms of mental disorder and corporeal disease treated in the course of the volume, some of them extremely melancholy.

Upon the whole, this is an extremely clever and impressive sort of book, distinguished for originality of views and thought, and well calculated, by the unction of the style which the author has adopted, to attract and interest readers. The author is rather disposed, indeed, to expand a single thought into so many shapes, and to invest it in such a profusion of words, that it is sometimes not easy to know what meaning he wishes to convey; but he contrives to keep up attention, and when he does not fill the mind, he at least succeeds very often in pleasing the ear. Mr Fletcher is also fond of strong painting and high colouring in his delineations; and we often meet with descriptions so singularly glowing, that at first sight they convey the idea of exaggeration, but upon more minute inspection, seem merely adorned. He is also partial to a sly jest at a time,—as when he mentions the venerable but gallant Adonis of sixty-two, who had a most perverse preference for the society of his own maid-servants when at home; and who, whenever he was abroad, had a "singular but habitual trick of turning his head, apparently to relieve a crick in the neck, whenever there happened to pass a buxom chambermaid."

There is one class of readers to whom this book, we conceive, must be particularly useful. It is to those who labour under any of the forms of disease described in it; and among the therapeutic means to be adopted for the cure of mental indigestion and hypochondriasis or irritable brain, we think every good physician will recommend the diligent perusal of Mr Fletcher's sketches.

APPENDIX TO ORIGINAL COMMUNICATIONS.

ART. XI.—*Account of Two Cases of Stone in the Bladder, in which the Operation of Lithotripsy was successfully performed.* By WILLIAM KEITH, Esq. Surgeon, Aberdeen.

FOR the comfort of those labouring under the painful malady of stone in the bladder, and the encouragement of my brother surgeons, I send you for publication the annexed cases, successfully treated by me with the lithotriptic instruments.

The Reverend Robert Forbes, aged 72, hale and healthy, had laboured under the usual symptoms of stone in the bladder since April 1832, such as frequent calls to void his urine, the flow accompanied by heat and scalding, and followed by a cutting pain at the point of the penis; and the urine at times tinged with blood, especially after a longer walk than usual. The bladder was very irritable, and he cannot in consequence retain his water night or day beyond an hour and a-half, and often for a whole day not more than half an hour at a time.

On the 19th April 1833, I sounded him, and readily discovered the presence of a calculus measuring an inch and a-half in diameter. Upon exploring the bladder when as full as he could possibly bear it, with the recto-curvilinear sound, I found its dimensions two inches in its antero-posterior diameter, and three inches from side to side; smooth and regular over its whole surface, but excessively irritable.

For several days I endeavoured to allay the sensibility of the bladder and increase its capacity, by injecting warm water, but, with the utmost care and gentleness, could never cause it to receive more than three ounces, and that quantity was almost immediately expelled. To accustom the urethra to the presence of an instrument, and to prepare the way for the percussor, a straight staff, four lines in diameter, was occasionally, and with ease, introduced.

Having resolved to make a first attempt on Tuesday, April 23d, a starch enema, with laudanum, was thrown up the rectum two hours before the time fixed for operating, which had the effect of enabling the bladder to receive and retain six ounces of fluid thrown in as the first step of the operation. The catheter being withdrawn, the percussor was introduced, and a stone of the dimensions stated readily seized. The instrument secured in the fixed point, or moveable vice of Baron Heurteloup's bed, on which the patient reclined, the hammer was applied, and the stone shattered to pieces. A large fragment was again seized and crushed. A third seizure was effected, but a fold of the mucous membrane of the bladder was felt between the teeth of the percussor and the fragment; and the latter was accordingly dropped.

The time prescribed (fifteen minutes) having expired, nothing farther was attempted. In a few minutes Mr F. made water freely, and discharged a quantity of small sand and gravel, composed of lithic acid; and several fragments followed in the course of the night. The urine was tinged with blood, but no hemorrhage whatever followed. His only complaint was of slight heat and scalding along the urethra. He passed a tolerable night, and was out next morning before seven o'clock at his usual walk.

On Wednesday, May 1st, a second operation was intended; but the opiate injection failed to quiet the bladder sufficiently to make it retain even three ounces of water, and that also was expelled on the introduction of the percussor, so that it was deemed expedient to defer the operation.

By soothing treatment, the irritability of the bladder was so much abated, that on the 11th it retained seven ounces of water, without the previous administration of the opiate clyster. Two large fragments were seized and crushed at this sitting, and a number of small pieces of stone came off during that night and the ensuing three days. The symptoms were much ameliorated after this operation,—the patient requiring to void his urine only twice or thrice in the course of a night, in place of six or eight times.

Several other sittings took place, each averaging from eight to ten minutes in duration, and at which from two to five fragments were seized and crushed. A period of three weeks was lost, by his having caught the epidemic then raging, so that the last operation was not until the 20th of July, on which occasion three small fragments were reduced to powder, and the bladder found to be clear. It was again carefully explored on the 24th, and not a fragment remained. Mr F. jocularly remarked, that he was quite certain he was *a whole stone lighter* since I had begun with him.

He has continued perfectly well, and is at this date as free of urinary affection, as if he had never suffered from stone in the bladder in his life. An ounce weight of fragments were collected. The operations were witnessed by Dr Skene, Mr Liston of Edinburgh, Mr Williamson, surgeon to the Royal Infirmary Aberdeen, Mr Andrew Skene, and Mr Williamson, my pupil.

As this was the first attempt in this part of the kingdom, I need not deny that my anxiety was intense, lest the life of my patient, or the character of this new and estimable operation, should suffer injury in my hands. Words are wanting me therefore, to express my gratitude to Dr Charles Skene, for having, with a kindness and candour that does him honour, shared all my responsibility, and, at the greatest personal inconvenience, aided by his presence and counsel at every operation, until the cure was past a doubt, thereby contributing mainly to the success that has crowned our united labours.

Francis Tough, house-wright, aged 60, of a spare habit, healthy, but wasted much from suffering, applied on the 5th of May, stating, that for nearly twelve months past he has suffered extreme agony, from symptoms of stone in his bladder, day and night, and with little or any abatement or intermission. The ordinary symptoms under which he laboured, were frequent calls to make water, pain and scalding along the whole length of the urethra, with constant pain and tenderness in the hypogastric region, especially on pressure; and he discharged blood, but little diluted by urine, from the urethra, as much as two gills at a time. The urine has for two months deposited a thick glutinous matter in great quantities, which adheres firmly to the bottom of the vessel after the urine is poured out.

I sounded him, and found a calculus measuring one inch and three-quarters in diameter; the mucous membrane of the bladder in a soft swelled spongy condition; the bladder contracted to a small size, but regularly, so that nothing was to be attempted in this case until the inflammatory action, evidently going on in the mucous membrane of the bladder, should be subdued.

An antiphlogistic plan of treatment was accordingly immediately adopted. The pulse being full and frequent, he was first bled to twelve ounces from the arm with great advantage, when the blood was both buffed and cupped. The general bleeding was twice repeated,—and leeches were freely applied five times in succession to the region of the bladder. Under this plan of treatment he improved steadily; the deposit became less and less; the urine pale and limpid; the pain and tenderness removed from the region of the bladder; and, by the end of June, he could keep his water an hour and a-half to two hours. Rest and a regulated diet were still enjoined, and on the 30th of July, conceiving the bladder tolerably healthy, the first sitting took place.

Having placed him on the rectangular bed, the bladder was injected with warm water to seven ounces, and the percussor introduced. The stone was readily seized and crushed, as were three large fragments subsequently. The bladder was afterwards washed out by a few ounces of water, and the operation finished in fourteen minutes. A tea-spoonful of fragments came away, and a quantity of *detritus*. He complained only of slight scalding along the urethra, and a feeling as if the neck of the bladder had been rather forcibly dilated that night. Next day the stone symptoms had almost departed; and on the night of

August the 1st, he slept from 8 P. M. to 8 next morning, which he had not done for years. Fragments came away for two or three days.

On the 3d of August, as the bladder was quiet, and all irritation arising from the former operation gone, he was again operated on, and four fragments crushed. On the 13th, five fragments were comminuted; on the 22d, seven fragments seized and broken,—the operation in whole occupying six minutes.

Injecting the bladder being now rendered unnecessary, from his being able with comfort to retain his urine for five hours prior to the operation, on the 28th, seven small fragments were destroyed. Each of these operations was followed by the discharge of a quantity of debris. On the 3d of this month, September, the bladder was carefully explored, and two fragments, measuring a quarter of an inch in diameter, discovered, picked up, and destroyed; the sand came away, and the bladder was clear. Yesterday morning, at 6 A. M. he went to his work, perfectly well.

The operation was witnessed by Dr Davidson of Marischal College; Dr Watt, formerly of Old Deer; Mr Greig, surgeon, R. N.; Mr Andrew Skene; Dr M'Kenzie; Mr Fowler; and Mr Williamson, my pupil.

The fragments preserved weighed six and a-half drachms, but more than half again were lost at stool, and in the shape of sand.

I never intend again to use the anodyne clyster; and, indeed, only used it at the two first sittings with Mr Forbes. Its use is followed by a parching thirst, &c. If it is requisite to quiet irritation, other treatment will be more effectual.

Aberdeen, 10th September 1833.

ART. XII.—*Two Cases of Stone in the Bladder, in which the operation of Lithotripsy was successfully performed.* By ROBERT LISTON, Esq., Senior Surgeon to the Royal Infirmary.

To the EDITOR *of the Edin. Med. and Surg. Journal.*

SIR,

NOTWITHSTANDING my disapproval of "the hammering of stones in the bladder," expressed in my Elements of Surgery, I have deemed it incumbent on me to give the practice a fair trial,—the improved instruments appearing both simple and efficient.

I have, accordingly, employed the *percuteur* in two cases. The result has proved so far beyond my expectation, that I send you the following short statement for publication, hoping that it may induce others to make trial of the apparatus. For it is only from the accumulated experience of the regular surgeons, that we can hope for certain advancement in lithotritie.

The first patient on whom I employed the *percuteur*, thus describes his case.

"Sir, *Edinburgh, 9th September* 1833.

"After being afflicted for upwards of two years with what I supposed a complaint in my bladder, I waited upon you for advice. Upon sounding, you discovered there were several stones in my bladder, and immediately extracted (by Weiss's forceps) one much larger than I conceived possible to come through the urethra. At my second and third visits, eight or ten smaller stones were extracted; and by using sweet spirits of nitre, and drinking largely of barley-water, as you advised, I passed, in the course of a few weeks, from sixty to seventy pieces of stone, varying from the size of a small white pea, to that of a small horse-bean.

"At my fourth and fifth visits, you ground down with an instrument, which I suppose of French invention, (Civiale's improved three-branched instrument,) a stone supposed nearly an inch in span, and another about the size of a Spanish nut. By again using spirit of nitre, and drinking barley-water, many small fragments were passed.

"After a lapse of several months, I again waited upon you, when you ground down with a new instrument (the percuteur) a small stone; and, in fourteen days thereafter, when I again waited upon you, you ground down two stones, one of them of considerable size. Agreeably to your instructions, on both these occasions I used sweet spirit of nitre, and drank a good deal of barley-water, which caused a great number of fragments of stone to come away, and stuff like slaked lime.

"The pain and uneasiness caused by the new instrument, was infinitely less than what was caused by the other.

"When I waited upon you on Sunday the 26th ult., fourteen days after the last operation, you sounded me two or three times, without discovering any thing in the bladder. You then injected some warm water, and sounded again, with the same result.

"Since the last operation with the new instrument, I have been entirely free from pain, and now make water with as much freedom and ease as ever I did in my life. Thus, you have cured me of a most distressing complaint, for which I can never be sufficiently thankful and grateful to you.—I am, Sir, &c.

J. M."

The working of Civiale's apparatus in this case produced considerable pain and irritation, whereas the *percuteur* caused almost no pain whatever, the patient merely complaining of the annoying sensation which accompanies a strong desire to make water. There was also no admixture of blood with the urine that escaped during the operation, showing that no injury had been done to the coats of the bladder.

Thomas Baxter, æt. 54, a labourer, applied to me, suffering under the usual symptoms of stone in the bladder. On sounding, I detected a calculus, apparently of no great size; and, as the bladder was tolerably capacious and not particularly irritable, I proposed again trying the *percuteur*. I found rather more difficulty in seizing the stone than in the former case; but, without causing much pain, succeeded in grasping it, and accomplishing one crushing. He remained in town two days, passing a good deal of sand, but no fragments. He then went home (to Kirkaldy), so trifling was the irritation produced by the "sitting," and returned after the lapse of a week. He was then admitted into the Infirmary, August 18th. Next day the operation was repeated with very little suffering; and a good deal of sand was afterwards passed with the urine. On the 29th, the operation was performed a third time; and next day a great quantity of sand and fragments passed off with the urine. This was the most severe sitting. There was some difficulty, and consequent delay, in catching the stone; the patient complained a good deal; and the urine that escaped was bloody. On September 6th, a fourth sitting took place; and, having then grasped a body fully as large as in the preceding operation, I was led to suspect that there had been originally two stones in the bladder. Next day "several large pieces" were passed, along with much sand. So little did the patient suffer from this last sitting, that I was induced to repeat the operation to-day. Several fragments, of no great size, were seized and crushed; and it is probable, that now the bladder will be cleared by its own efforts. Perhaps one other sitting, certainly not more, may yet be necessary.

From this brief experience, I am convinced, that the *percuteur* is both safer and more efficient than the instrument of Civiale, and that it will be employed with advantage in those cases of stone which admit of lithotritie,—unfortunately, but a small proportion of those which present themselves to the surgeon.

99, *George Street*,
September 9th 1833.

PART III.

MEDICAL INTELLIGENCE.

PHYSIOLOGY.

Discovery of a new principle in the serum of the Human Blood. By M. FELIX BOUDET. (*Journal de Pharmacie, Juin* 1833.) M. Felix Boudet, in a memoir presented to the Institute, has investigated anew the composition of the serum of the human blood. His researches prove, that when evaporated to dryness, exhausted by boiling water, and dried anew, it yields to boiling alcohol the following substances; *1st*, a peculiar immediate principle, called by the author *seroline*; *2d*, *cholesterine*; *3d*, a *soap*, soluble in water, most probably formed by the margalate and oleate of soda; and *4th*, the *fatty matter of the brain.*

Seroline is deposited, on cooling, from the boiling alcohol by which the serum has been exhausted. The liquor filtered, when cold and evaporated, leaves a residue of a resinous consistence (*de consistance terebinthineuse.*) On treating this with cold alcohol, at 36° (*specific gravity* 0.8252,) the fatty matter of the brain is separated, and a substance is dissolved, which is considered by M. Lecanu to be an oil, but proved by M. Boudet to be composed of several distinct principles. In fact, the liquor left to itself, deposits crystals of cholesterine, and retains the soap mentioned above, together with a little of the fatty substance of the brain.

Seroline is white, of a slight pearly-colour, in the form of filaments, which, viewed by the microscope, present the appearance of globules, or globular swellings. It melts into a colourless oil at the temperature of + 36° (97.8. *Fahr.*) It has no action on coloured reagents, but, like cholesterine, becomes red on the contact of concentrated sulphuric acid. Sulphuric ether dissolves it easily; alcohol, on the contrary, at 36° (*sp. gr.* 0.8252,) dissolves only a trace of it at the temperature of ebullition, but has no effect on it when employed cold. Treated hot for six hours with *aqua potassæ*, it seemed not to experience any modification, and hydrochloric acid produced not the least disturbance in the alkaline liquor. Neither acetic nor hydrochloric acid produced any apparent alteration on it, whether hot or cold. When heated a long time with nitric acid, it was not dissolved, but became soluble in *aqua potassæ*, to which it communicated a brown colour. Distilled by the lamp in a small glass tube, it diffused a very characteristic odour, furnished some alkaline vapours, a trifling residue resembling charcoal, and appeared to be in part volatilized. The small quantity of *seroline* obtained, did not permit M. Boudet to submit this substance to a greater number of tests, but he conceives that enough has been done to prove it to be a new principle.

PATHOLOGY.

Chemical examination of a Salivary Calculus of an extraordinary size found in an Ass. By M. LESSAIGNE. (*Journal de Chimie Medicale, Avril* 1833.)—Its form was oval; its exterior of a whitish colour; its size that of the fist; its weight 620 grammes, or about eighteen ounces (*poid* *de marc*), and it was almost as hard as marble. Sawed longitudinally, it presented a homogeneous mass formed of concentrical superinduced layers of a beautiful white colour. Its specific gravity, at the temperature of + 10, (50° *Fahr.*), and at the pressure of 0.765, was 2.302. Its composition was as follows:—

Humidity, - - - - -	3.6
Soluble salivary principles, - -	1.0
Mucus, - - - - -	6.4
Phosphate of lime, and traces of oxide of iron,	3.0
Carbonate of lime, - - -	86.0
	100.0

This new example of salivary calculus, is another proof that concretions of this kind are always of the same composition in herbivorous animals.

MEDICAL AND SURGICAL THERAPEUTICS.

1. *Substitution of Styrax in Blenorrhœa and Leucorrhœa for the Balsam of Copaiva.* (*Journal de Chimie Médicale, Fevrier* 1833.—M. Lheretier asserts, that styrax has the same effects in blenhorrhœa and leucorrhœa as balsam of copaiva, and proposes that it should be substituted for that substance, which is disgusting to the taste, and offensive to the stomach of many. He recommends it to be exhibited in the form of pill or bolus.

Purified liquid styrax is to be mixed with a quantity of powdered liquorice root, sufficient to give it consistence, and three pills or *boli* formed of this mass, and weighing each from six to eight grains, are to be administered morning and evening. The number may be gradually increased to twelve daily. A syrup may also be formed, which, however, does not act so promptly as the pills. It is formed in the same manner as the syrup of Tolu of the *Codex Medicamentarius* of Paris. The proportions are, two ounces of styrax, two pounds of water, and four pounds of sugar; and the dose, six spoonfuls a-day. The mode of action of this medicine is said to be the same as that of copaiva. Some patients it constipates; on others it has a contrary effect. It is always preferable to copaiva, as it possesses all its advantages without disgusting the patient.

The syrup is chiefly useful in leucorrhœa, which is reported to yield readily to its use.

2. *On the Obliteration of Veins as a mode of Curing Varices.* By M. Davats. (*Archives Générales de Médecine, Mai* 1833.)—M. Davats, in a learned paper on the different modes of alleviating and curing varicose veins, objects, on various grounds, to all the plans hitherto proposed, and recommends obliteration of the affected vein by a novel procedure. This consists in irritating very slightly two opposite points of the internal surface of a vein, and, at the same time, in keeping those points in contact. A simple sewing needle of any description will answer for the operation, which is thus performed. First the vein is made to swell by means of ligature, is seized by the finger and thumb, and isolated by passing a needle transversely under it; then the anterior, and next the posterior, wall of the vein is pierced perpendicularly with the point of another needle, which is conducted higher up, to pierce a second time first the posterior and next the anterior wall. The last needle is retained in its place by means of a thread twisted like the figure 8. In five days the thread may be cut, and the needle will fall out of itself. The first needle may be left till it drops spontaneously. In a few hours after the expulsion of the needles, the little wounds will heal kindly.

M. Davats has made several experiments, which prove the safety of the operation, and the rapidity with which a radical cure may be thus performed, complete obliteration taking place by the fifteenth day. In one experiment the operation was performed on two parts of the same vein, leaving a portion between them filled with blood. The blood coagulated, and was absorbed; the vein became obliterated, and no accident occurred.

M. Davats maintains, that compression alone is insufficient to cause obliteration of a vein, and supports his opinion by several experiments, in which the most perfect compression failed to secure this result.

By the operation proposed, the vein is transformed into a cord, white, round, filiform, and analogous to ligamentous tissue. The obliteration extends above and below the point of lesion, as far as the first anastomozing veins, which become sufficiently dilated to give free course to the blood. Beyond the anastomoses the venous tissue assumes its normal state. No trace of inflammation is observed; no clot of blood found in any part; and the cellular tissue surrounding the portion of obliterated vein is found in the most healthy state.

MEDICAL JURISPRUDENCE AND POLICE.

1. *On a peculiar Animal Substance produced during the Decomposition of the Dead Body.* By MM. Ollivier d'Angers and A. Chevallier.—(*Journal de Chimie Medicale, Avril* 1833.)—At certain periods of a peculiar decomposition which dead bodies undergo, consisting of a progressive *mummification*, about three months or less after interment, there is found a particular substance produced from all, or the greater part, of the various organs or soft tissues which cover the skeleton. On the surface of the liver, which at this period is found of a blackish-green, withered, in a state of incipient desiccation, and diminished at least to half its volume, this production appears as a white, hard, matter, sometimes under the form of irregular granulations, sometimes like flat plates of a crystalline appearance, rough to the touch, disposed in groups sufficiently large to make their whiteness the more remarkable, from their adhering to a dark-green surface. It is deposited so as to form sometimes straight longitudinal bands parallel to each other; sometimes rounded plates, like concentrated and undulating zones, somewhat similar in appearance to the white lichens found on the bark of certain trees. The same kind of substance, variously disposed, is found in the interior of the liver, on the internal wall of its veins, in the aorta, and great vascular trunks. It differs entirely, not only in physical characters, but also in chemical composition, from the white grains found in the stomach.

After submitting this substance to as many tests as the small quantity which they possessed would permit, MM. Ollivier and Chevallier conclude, that it contains, 1*st*, traces of an ammoniacal salt; 2*d*, an animal matter analogous to gelatine; 3*d*, traces of the muriate of soda; 4*th*, a fatty matter soluble in alcohol; 5*th*, an animal matter soluble in acetic acid; 6*th*, traces of an alkaline carbonate, the result of incineration; and 7*th*, traces of the phosphate of lime.

It is not probable that this singular production could ever become the cause of any mistakes in the matter of poisoning; for, whether found adhering to the surface of the liver, or detached and free in the midst of the neighbouring organs, chemical analysis would always easily demonstrate that it differed essentially from every species of poison. It is clear that the elements which enter into its composition are furnished by the decomposition of the body. Nevertheless, it is well to call the attention of the profession to every peculiarity which accompanies the decomposition of dead bodies at different periods following inhumation.

2. *On the presence of copper in wheat and several other substances.* By M. Boutigny. (*Journal de Chimie Medicale, Mars* 1833.)—M. Boutigny, by a very interesting delicate process, has succeeded in discovering the presence of minute portions of copper in cider which had passed through a

copper cock,—in cider, in the preparation of which no copper had been employed,—in the factitious waters of Seltzer and Vichy, prepared by several establishments of Paris,—in the water which had served to boil sorrel, artichokes, spinage, and succory, in a cauldron of yellow copper,—in common beef soup, prepared in a copper pot ill-tinned, and in a corresponding mass prepared in the same pot tinned anew,—in three samples of vinegar, and in six of brandy,—in claret, and in *vin de Chably*,—and in treacle.

The process which he employed, consists in suspending, by means of a hair, the half of a fine needle in the midst of a liquid previously acidulated with sulphuric acid. The apparatus thus disposed, is placed under a bell-glass, and left by itself in an isolated apartment. As soon as the bar of iron is plunged in the liquid, M. Boutigny conceives that the action commences, though it is not till after six, eight, twelve, or even twenty-four hours, according to the state of the atmosphere, that it becomes apparent. Then the needle loses its metallic lustre. It is commonly at the head that the action commences, proceeding successively through the remainder, and terminating at the base. If the operation be carefully watched, at a certain period the superior half of the needle will be found tarnished, while the other half still retains its metallic lustre. Then will be perceived covering the needle some air bells, which become larger, and when they have acquired a certain volume, detach themselves, and burst at the surface of the liquid. In from one to three days this disengagement ceases at the surface of the bar of steel, to commence at the inferior part, a curious phenomenon, which occurs only in liquids containing a notable quantity of copper, and which may be attributed to two causes, acting, perhaps, simultaneously, electricity, and the coppering of the needle. The latter opposes the disengagement of the gas by an action altogether mechanical, and the needle, in becoming polarized, does not permit the gas to be disengaged except by its negative pole. After this the head of the needle will be the positive pole, and the inferior extremity the negative. Admitting electricity to be the primary cause of the decomposition of the salt of copper, it is very easy to explain the subsequent phenomena. The steel, according to M. Becquerel, is one of the elements of the pile, the acid of the salt of copper is carried to the positive, and the oxide to the negative pole. This, again, is decomposed,—the oxygen goes to the iron, which is oxidized, and dissolved in the sulphuric acid, and the copper is precipitated on the steel, covers it entirely, and opposes, as mentioned above, the disengagement of the gas. This, however, does not constitute all the action, for the sulphuric acid which M. Boutigny has elsewhere shown to be added merely to render the water a better conductor of the electric fluid, acts on the steel by causing the decomposition of the water, the oxygen of which goes to the iron, while the hydrogen is evolved. The oxide of iron thus formed is dissolved in the sulphuric acid, and forms sulphate of iron, which remains in solution.

To insure the success of the experiment, the following conditions are necessary: 1*st*, a small bar of steel; 2*d*, an acid capable of dissolving the deutoxide of copper, and one of the elements of the steel, after being oxidized at the expence of the water, or of the oxide of copper, and having no action on metallic copper,—sulphuric acid, fulfilling all these conditions, ought consequently to be preferred. The other conditions are a liquid, slightly, if at all, viscid, and of the same or nearly the same density as distilled water.

After the appearance of the phenomena enumerated above, there occurs a moment when they cease, which is known by the absence of bubbles, and most frequently by the horizontal position of the cylinder, which has replaced the needle on the surface of the liquid. This cylinder, being carefully lifted, and mixed with a grain of borax and a sufficient quantity of oil to form a paste, is to be placed in a testing-tube, and submitted to the action of a blowpipe, till it acquires a very deep-red brown colour. In this state, the tube, when examined by the aid of a good magnifying glass, will exhibit several points of metallic copper scattered over its surface.

The results of the facts and experiments narrated by M. Boutigny are, 1*st*, that articles of food and drink prepared in copper vessels, contain almost always more or less of that metal,—a fact which renders it desirable that for this metal some other should be substituted; 2*d*, that wine, cider, and wheat, conceal sometimes atoms of this metal, but only when it is contained in the soil in which the vines, apple trees, and wheat grow;—from which we may infer, that the presence of copper in vegetables is *not the result of the act of vegetation*, but only of absorption; 3*d*, that the discovery of copper in articles of food and drink raises a question in legal medicine, which renders new investigations necessary, and which, in the meantime, ought to render experimenters very circumspect in cases of poisoning by copper.

GRADUATIONS AND SURGICAL EXAMINATIONS.

Medical Graduations at Edinburgh.—On the 12th of July 1833, the Senatus Academicus of the University of Edinburgh conferred the Degree of Doctor of Medicine on the following Gentlemen, in number one hundred and ten, after having gone through the appointed examinations, and defended publicly their Inaugural Dissertations.

Of Scotland.

Somerville Scott Alison, De Peripneumonia.
George Arnott, De Erysipelate.
Robert Bartholomew, De Cholera maligna.
Charles William Bell, De Hæmorrhagia sistenda.
John Brown, De Modo quo Vulnera Sanantur.
Duncan Campbell, De Hydrocele.
Donald Cargill, De Cholera Spasmodica.
Robert Carlyle, De Pneumonia.
William Dick, De Fibulæ Fracturis.
Robert Greig Dods, De Cholera.
John Douglas, De Apoplexia.
Stevens Fyffe, De Cynanche Tracheali.
William Steel Gairdner, De Contagio.
James Gordon, De Herniæ Inguinalis Anatomia.
John Grant, De Ipecacuanha.
James Halliday, De Ascite Abdominale.
George Hamilton, De Spina bifida.
George Hannay, De Inverminatione.
Thomas Samuel Hardie, De Cholera maligna.
Thomas Howden, De Capitis injuriis.
Alexander Lorimer, De Dysenteria.
Robert Lowe, De Pneumonia.
Andrew Douglas Maclagan, De Calculis biliariis.
William Maclaren, De Hepatitide.
Alexander M'Donald, De Ophthalmia conjunctivali.
James David Mackenzie, De Dysenteria.
Andrew M'Lean, De An variolæ post vaccinationem vel bis in eodem homine superveniunt.
William Campbell Maclean, De Proprietate amputationis in exemplis gangrænæ traumaticæ.
James Moffat, De Ischuria renali.
John Young Myrtle, De Bronchitide.
George Paton, De Apoplexia.
John Sinclair, De Cancro uteri.
George Lillie Smith, De Bronchitide.
John Robert Speirs, De Hydrope.
James Stark, De Modo quo coloribus odores afficiuntur.
James Stewart Thorburn, De Reactione sive virium vitalium renixu.
Paul Darling Veitch, De Apoplexia.
Dunbar White, De Calore.
George Wilson, De Morbo coxario.

From England.

William Arpthorp, De Delirio tremente.
Martin Barry, De Animalium temperie.
William Borman Barton, De Quatenus animi motus Gravidarum ad mutationes in corpore fœtus gignendum valeant.

Samuel Glover Bakewell, De Insania.
James Risdon Bennett, De Diabete.
Edwin Blackley, De Rachiloxia seu spinæ incurvatione.
Joseph Buller, De Tuberculis.
Lawson Cape, De Strabismo.
Gustavus A. Chaytor, De Iritide.
John William Coster, De Diæta.
Charles Cowan, De Physiologia et pathologia intermissionis.
John Henry Evans, De Curvatura laterali.
Ralph Fletcher, De Neuralgia.
John Thomas Harrison Hobbes, De Pertussi.
Alfred Harper, De Placenta uterina.
Robert Hornby, De Qua sit optima ambusta curandi ratio, et cui principio hæc innitatur.
Alexander Macgregor, De Moræ indictivæ in peste arcenda, utilitate.
John Warburton Mosely, De Contagione.
John Marshall, De Dysenteria.
Charles William Moore, De Variis theoriis ad generationem explicandam.
Charles Nicholson, De Asphyxia.
Thomas Tranmer Peirson, De Apoplexia sanguinea.
Thomas Peregrine, De Hydrargyri in syphilide curanda, potestate.
Charles Ransford, De Structura cerebelli.
Owen Roberts, De Delirio tremente.
Frederick Snaith, De Gonorrhœa.
Cornelius Squire, De Syphilide et pseudo-syphilide.
James Richard White Vose, De Malis quibus obnoxii sunt studiosi atque sedentarii.
George Bott Churchill Watson, De Placentæ post partum retentione.

From Ireland.

Michael Campbell, De Ascite.
David Carter, De Cholera epidemica.
Thomas D'Arcy, De Pneumonia.
Richard Doherty, De Emphysemate pulmonum.
Charles Dwyer, De Hepatitide.
John Peard Edgar, De Dyspepsia.
Joseph Enright, De Erysipelate.
Thomas Fitzpatrick, De Bronchitide acuta.
John Flyn, De Hæmoptysi.
Samuel Arthur Forster De Abortu.
William Geraghty, De Pleuritide.
Thomas Hogg, De Enteritide.
Henry Stoney Lindsay, De Læsionibus arteriarum, &c.
Robert Locke, De Strictura urethræ.
John Lysaght M'Carthy, De Ulceribus.
William M'Cormick, De Aneurysmate.
Gavin Moffat M'Lure, De Apoplexia sanguinea.
John James Macgregor, De Inflammatione.
Andrew M'Tucker, De Hydrope.
John M'Cay, De Inflammatione venarum.
Richard Maffett, De Phlegmasia dolente ejusque curatione.
Thomas Massy, De Cholera asphyxia.
John Motherell, De Morbis glandulæ prostatæ.
Thomas Purefoy, De Ictero.
James Seton Reid, De Secalis cornuti effectibus.
Thomas Shields, De Cholera maligna.
James Richard Smyth, De Cholera epidemica.
William Wallace, De Structura nævorum subcutaneorum, &c.
John Wallis, De Hæmorrhagia uterina.
George Worthington, De Ascite.

From the East Indies.

Patrick Alexander Andrew, De Cholera asphyxia.

From Barbadoes.

James Gill Bascom, De Urethra stricta.

From Berbice.

John Davidson Barnes, De Febri maligna puerperali.

From the Island of Cæsarea.

Evan Philip Cameron, De Scrofula.

From Sweden.

George Paterson, De Animi, in corporis morbis excitandis, propagandis curandisque, potestate.

From Canada.

James Bell Johnston, Delirio tremente.
Thomas Walter Jones, De Iodinio ejusque compositis.
James Arthur Sewell, De Injuriis capitis.

From Nova Scotia.

Laurence Tremain, De Calculis urinariis et lithotritura.

John E. Forsyth, De Erysipelate.

From the Cape of Good Hope.

John Rudolph Zeederberg, De Peripneumonia.

From Bermuda.

Thomas William Hunt, De Effectibus atmospherii in corpus humanum.

Surgeons' Hall, Edinburgh, August 31, 1833.—*Since 1st July* 1832, the following gentlemen have offered themselves as Candidates for the *Diploma of the Royal College of Surgeons of Edinburgh*, and after producing satisfactory evidence that they had completed the course of study prescribed by the College, have been admitted to examination, and found fully qualified to practice the arts of *Anatomy, Surgery, and Pharmacy*, and have received Diplomas accordingly.

Scotland.

William Steel Gairdner,
Thomas M'Clelland,
William C. M'Lean,
John Chirnside,
James Miller,
John Robert Spiers,
Thomas Hunter,
James Fortune,
Donald Crawford,
William Harvey,
George Paton,
James Macansh,
Benjamin Joseph Bell,
Edward S. Bonthron,
George Arnott,
James Moffat,
Alexander M'Donald,
Alexander Anderson,
John Hutton,
Campbell Flyter,
George Harper,
George Forsyth,
Alexander Wright,
Thomas Taylor,
Hugh M'Bean,
Charles Don,
Henry Paterson,
John Moffatt,
Patrick R. Fleming,
George Feddes Forbes,
John Anderson,
Alexander Lorimer,
James Cochrane,
James Kerr,
William Hibbert,
Thomas Fairbairn,
Robert Smith,
James Dunlop,
William Baillie,
William Mackintosh,
John Macrae,
Henry Smith,
Samuel Smiles,
James Cooper,
James Miller,
John Maclaren,
Daniel Scott,
David Smith,
William Kennedy,
Edward Mitchell,
William Dunbar,
James Grant,
John Forbes,
Patrick B. Cunningham,
Lewis Grant,
Andrew Creighton,
George W. Campbell,
George Paton,
William M'Ewen,
Robert Aberdeen,
Basil Aitchison,
John Freeland Fergus,
George Laing,
John Thomas Crichton,
Alexander Robertson,
James John Forbes,
John Ogilvie,
William Ewart,
John Bowhill,
George Blair Cochran,
William Tait,
William Neilson,
John Rae,
James Pringle Rae,
George Pirie,
John Halliday,
William Benson,
Ebenezer Skae,
William Hume,
Robert Carlyle,
William Davidson,
Charles John Mill,
Charles Smith,
David Wishart,
James Forbes,
Fred. M. Dinwoodie,
John Symington,
John Alexander Ross,
Adam Bell,
George Arnott,
James Halliday,
James Stuart,
Thomas Ritchie,
Robert Steven,
Thomas W. Wilson,
Norman Campbell,
Roger Rankine,
James Corson Fyfe,
Edward G. Balfour,
James Boyd,
Robert Edgar,
John Douglas,
John Blyth,
Edward Nelson,
William Kennedy,
John Ferguson Allan,
John Hamilton,
Charles F. Sloan,
William Campbell,
Niel S. Campbell,
John Renton,
Robert Purves,
James Todd,
John Stewart,
John Lothian,
Daniel Robertson,
George Robertson,
John Carruthers,
William D. Kerr,
John Sutherland,
George Wilson,
George Chapman,
George Hannay,
John Sinclair,
William Kirkwood,

George Hamilton,
James Gordon,
Thomas G. Balfour,
Charles Cunningham,
John Rymer Collymore,
Robert Robertson,
William Preston Molle,
David Macfarlane,
John Mayne,
John Grant,

England and Wales.

James Marr,
George M'Laren,
Charles Nicholson,
Benjamin George Calder,
John Forster,
John Williams,
John W. Moseley,
Thomas Butterworth,
Montague Scott,
John Colpoys Smith,
Thomas Compton,
David Morice,
James Lilley,
Thomas Wallace Aird,
George Wilson,
Francis Manisty,
Henry James Player,
James William Moffatt,
Matthew Smith Milton,
Thomas Watts,
Samuel Watson,
Thomas Lightfoot,
Charles Cowan,
Robert Verity,
John Rudd,
William Borman Barton,
Thomas H. Fowler,
Peter Mason,
Charles Ransford,
Martin Barry,
Robert Hornby,
William Davison,
Robert T. Lightfoot,
John Bennet,
William H. Swinburn,
Frederick S. Frost,

Berwick-on-Tweed.

John Davidson Barnes,

Ireland.

Patrick Ryan,
Charles Joseph O'Hara,
Cornelius O'Driscoll
Martin Lynch,
Robert H. C. Gillies,
Robert Dickson,
Edward Gawley,
William Ferris,
John Griffin,
William Nicolson Rose,
William John Rose,
William Godfrey Bace,
George Augustus Latham.
James Francis O'Beirne,
Charles W. Riggs,
Charles Mathews,
George Robinson,
Edward O'Brien,
Samuel Dean,
Edward Haliday,
John Motherell,
Patrick O'Hare,
Thomas Purefoy,
John Enscoe,
Edmund Sharkey,
John Hallaran,

Abroad.

James Arthur Sewell,
James Walter Jones,
David Davies,
Henry Thornhill,
Archibald Alexander,
James Macdonell,
John R. Zeederberg,
Price Carfrae Brown,
Archibald Campbell,
Thomas W. Hunt,
William J. Anderson,
William May,
Christopher Carter,
Alfred Jackson,
George Martin,
George Paterson,
Lawrence Tremain,
Patrick A. Andrew,
George Willis,
John George Innes.

Extracted from the Records of the Royal College by
(Signed) Wm. Scott, *Sec.*

Surgical Hospital, Upper Baggot Street, Dublin.—We have received intelligence of the establishment of a new hospital for the reception of surgical patients chiefly in Upper Baggot Street, Dublin. Some provision of this kind had been rendered requisite by the great increase of population which has, within a few years, taken place in the southern extremity of the city, and the neighbouring suburbs, in order to accommodate the sick poor; and, with this view, it was conceived that an hospital capable of accommodating fifty patients, would be adequate to the purpose intended. The first efforts were made chiefly by the medical officers of the institution, who contributed at once a sum exceeding L. 1400, and who undertook to contribute annually a considerable sum, to be derived from pupils attending their instructions. The hospital was accordingly opened in December 1832; and between that date and the 17th April, when the first report was laid before the managing committee, 187 patients, whose ailments, including many dangerous accidents, did not admit of being treated at their own houses, were admitted into its wards, and have enjoyed the benefits of the institution, and several hundreds of out-patients have received advice and medicines from a Dispensary-establishment attached to the hospital.

This institution, though denominated a Surgical Hospital, appears nevertheless not to be confined to surgical cases, for all diseases not infectious are admissible. The conditions of admission are the following. Subscribers of one guinea have the privilege of recommending any number of patients to the Dispensary. Subscribers of two guineas have the privilege of not only recommending them to the Dispensary, but of sending a patient to hospital; and subscribers of five guineas may recommend patients, whose complaints come within the objects of the charity, to the use of a bed for the whole year. Severe accidents are received at all times without recommendation.

The Archdeacon of Dublin is chairman of the managing committee. The medical officers of the institution, are Dr Colles and Dr Wilmot, consulting surgeons, Dr T. E. Beatty consulting accoucheur, and Drs Jacob, Harrison, Apjohn, Benson, and Houston, ordinary medical attendants.

We have received from Mr John Green Crosse of Norwich, a letter containing the correction of a statement alleged to be erroneous in last number, and which places the town of Norwich among those not provided with Medical Lectures. The correction is contained in the following words. "For three winters, anatomical dissections have actually been made by a majority of students in the town, and lectures and demonstrations on anatomy have been given. Evening courses of lectures on surgery and the practice of medicine, were also for two winters given here, and opportunities, which I need not specify, are continually occurring to our students, of gaining the most essential and useful information."

Mr John Green Crosse, in giving this correction, is the deputed organ of the Norwich and Norfolk United Medical Book Society. The statement is altogether vague and void of precision; and it ought to have proceeded either from the secretary of the medical school of Norwich, if such there be, or from the Teachers themselves, or some similar official person, and it ought to have specified the duration of the courses, and the number of lectures or demonstrations delivered every week. We have great pleasure, nevertheless, in giving Mr John Green Crosse, or the members of the Norwich and Norfolk United Medical Book Society, an opportunity of rectifying the mis-statement. On the tone of the letter of Mr John Green Crosse, and on that of the resolution authorizing him to write it, it is unnecessary tó make any remark.

Note.—At page 244 it was stated, that the patient from whom Mr Syme removed the symphysis of the lower jaw, died in consequence of the inflammation spreading to the throat. By referring to the report of the case in p. 328, it will be found that two pounds of serous fluid were found in the cavity of each pleura, and that the bronchial tubes were loaded with frothy mucus.

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